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Vol. CLXVI No. 2163 WITH WHICH IS INCORPORATED THE GRAPHIC JULY 5 1941

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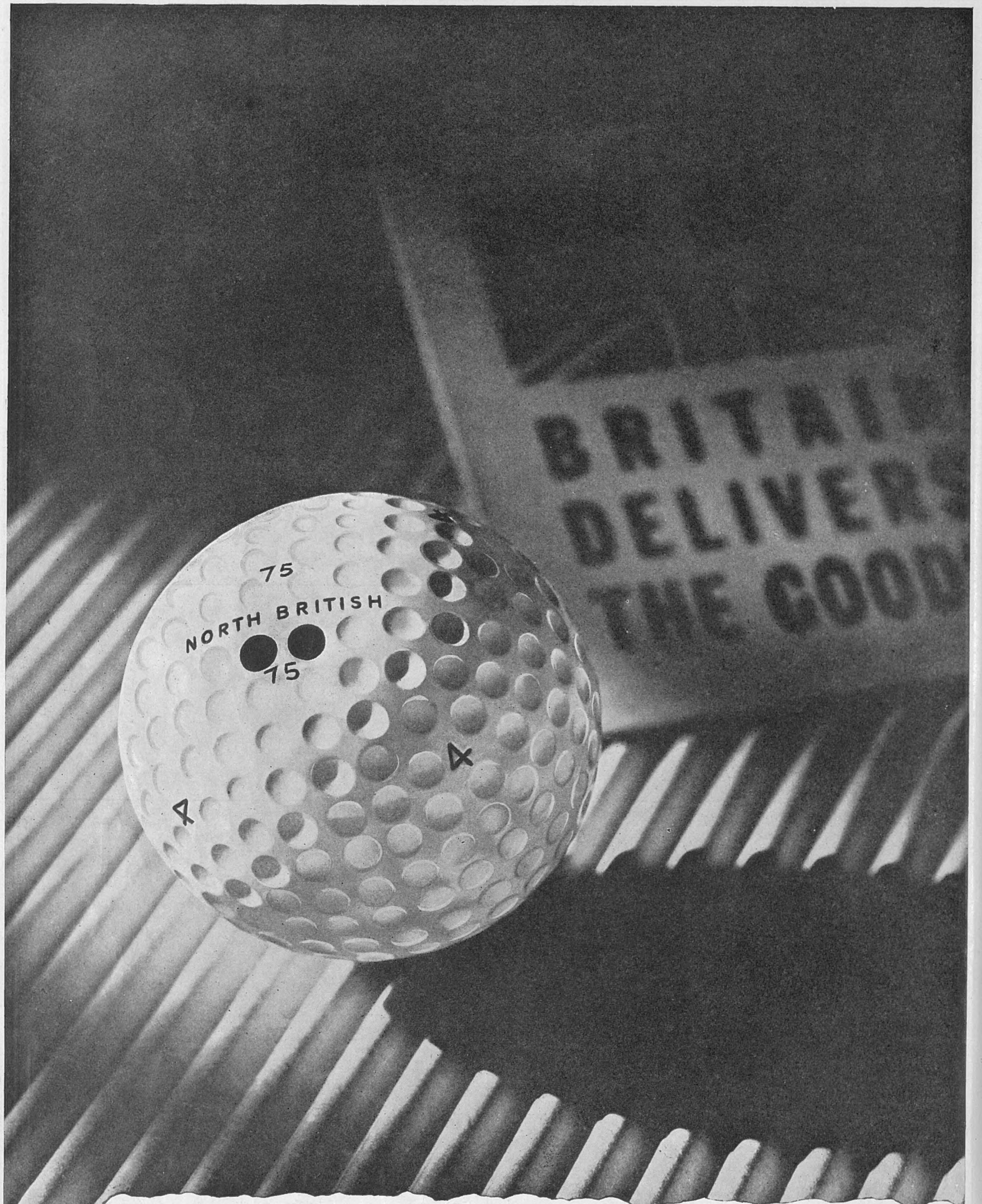

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Volume CLXVI No. 2163 The SPHERE, London, July 5, 1941

THE SPHERE

With which is incorporated "THE GRAPHIC"

The Empire's Illustrated Weekly

London, July 5, 1941

ONCE AGAIN THE R.A.F. ARE SWEEPING THE SKIES, BUT THIS TIME OVER FRANCE: A British airman returns from a daylight raid, and his plane is immediately prepared for another flight whilst the pilot gives details to the Intelligence Officer

Led by veterans who won the Battle of Britain last year, the R.A.F. have now mastered the sky over the Occupied area of Northern France. Last year the air battles were taking place over South-East England, and the ratio of enemy planes shot down as against our own was in the nature of three to one : it was expected that when the war was carried into the enemy's territory we would have to face similar—or even increased—losses. Happily, this has not proved to be the case : on the contrary, the R.A.F. are still maintaining their three-to-one ascendancy, thus proving that our young pilots are still as good as ever, and that their improved Spitfires and Hurricanes are still more than a match for the new Messerschmitts, for which the Germans have made such extravagant claims. Above and on pp. 4 and 5 are some of the latest pictures taken at an R.A.F. Fighter station during an actual daylight sweep

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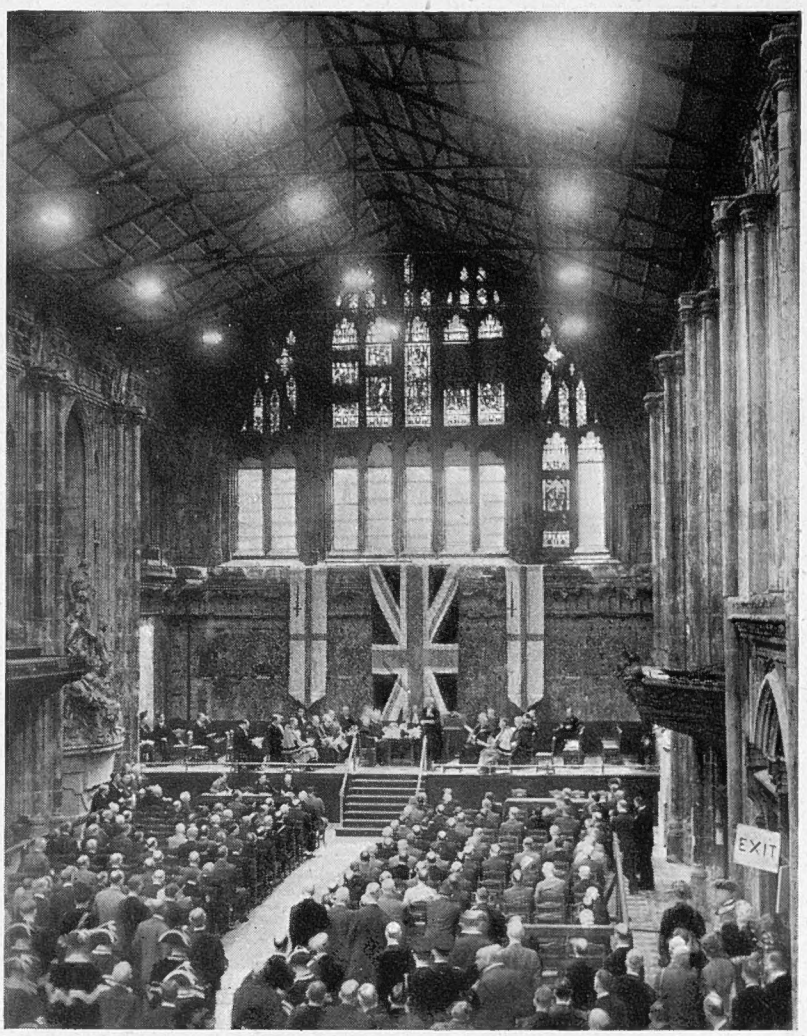
A WAR NEWSLETTER—No. 96

1, NEW OXFORD STREET, W.C.1.

Striking the Balance.—Looking back over the recent weeks of miraculous happenings and obscured speculations, nothing strikes me as more significant than the unanimity revealed by all sections among all the nations, actively or passively on our side, by no means to greet the entry of Russia into the war as an act of God on behalf of our cause. I can only attribute that restraint to two causes: to the disillusionment which all engaged in fighting Hitler have sustained by many bitter disappointments and setbacks, and by the reasonable doubt which Soviet policy has made inevitable as to whether the Russians after all might not "fight a cross" and simply "gracefully yield" by private arrangement to Hitler's demands after a "token" resistance. Yet, if we were not utterly befogged and disillusioned by double-crossings and trickery redoubled again and again by the nations of Europe, the miracle of Hitler's decision must have struck us as a stroke by Heaven for our cause—beyond dreams' and prayers' compass. For here was Hitler deliberately completing his own investment in a solid ring of hate, deliberately fighting on the doomed "two fronts," deliberately engaging and squandering the men and weapons and reserves earmarked for the final assault on Britain, deliberately bridging for us the critical time-lag beyond which lay parity in air strength and the completion of our rearmament. But for that disillusion and distrust, we must have surely cried aloud in thankfulness: "*Quem Deus vult.*" We knew and know the risks. The Nazi war machine must gain spectacular victories. Russia was not ready. Her war machine, loudly trumpeted, is doubtless largely a paper armament. In communications, organisation, machines, tools, she is still (and long will be) decades behind Germany. She must suffer bitter losses in men and treasure and territory. *But*, if she meant business—and to-day it looks as if she did—how could we fail to raise our hearts to the mountain-tops at the thought of hundreds of millions of new and fighting allies arrived in our camp, equipped (in some sort) and instantly engaged, armed with an impulse of hatred deeper than ours, taking the brunt we had expected now to take, leaving us free to complete our deficiencies and to pound the German reserves with very minor opposition. Add the ring of hate complete round an encircled Germany and the fatal "two-front war" after all accepted. Add, finally, that if the Russians of to-day are in some sort the descendants of those who destroyed Napoleon's power, we had the hope and belief that, however spectacular might be the successes, however rich the potential resources which the Nazis might loot from Russia, those Russians by their methods of fighting would see to it that those gains came to Hitler too damaged and too late to be of service in this great issue. Did disillusionment and doubt ever before affect so large a section of the world, with unanimity so complete and with a scepticism so uncommon to the natural optimism and exuberance of the human race? Think how we boosted the first Libyan victory! Nay, think how we hailed the entry of Yugoslavia into the war on our side!

Russian Postscript.—No man could (and no man did) argue that in promising all possible aid to Russia *now* the Premier was inconsistent, unwise or actuated by anything but sound sense and common justice. The greatest danger to the world's peace and existence in any sort of freedom, is abroad, rampant and highly successful. At such a time he who is against Hitler is for us, and though that man's sins be as scarlet, they become as white as wool—set beside Hitler's. The Russians—the peasants—are not Prussians. We know not even now if a month ago the bulk of them were not (as so many peoples of Europe are) slaves to their system of Government,



THE GREAT HALL OF THE GUILDHALL ONCE MORE IN USE: Although still bearing the scars it received during the great "Fire-Blitz" of London, and with a temporary roof in place of the burnt-out one, the Great Hall of the Guildhall is once more being used. A few days ago it was the scene of the picturesque Election of Sheriffs; and the Hustings (Principal Court of the City of London) was held there according to ancient usage. The Court is an Assembly of the Lord Mayor, Aldermen and Liverymen of the City Companies: choosing the Sheriffs is its principal occupation

silent, patient in suffering, powerless to resist or to resent. Whether or no, they are to-day fighting for their lives, soil and bare existence against the common enemy of mankind, and they are our allies. For a while the brunt of the attack will fall on them, and they are the second most valuable allies we have, on that account. If they can engage and keep engaged, for a few months only, a great part of the Nazi war machine, and wear it down as in total war even a victorious army is worn down, then they will surely bridge the time-lag and assure the ultimate downfall of Hitler and Nazism. If the Russians are the same race which brought about the downfall of Napoleon and can use the same methods, Communism may yet save Europe and save itself by reformation. We at least have least cause to dread it at its worst, for it is farthest from *our* shores among all the nations of the world. And if Russia be the chosen instrument, the decisive weight to turn the scale, who are we, men with all the blindness and frailties of mankind, to look the gifts of Heaven in the mouth? Do the Russians mean business? Will they soon wilt under the inevitable blows? Is their new hate strong to endure? These are the vital questions which the next few weeks will resolve. Which of us is so little disillusioned, so exuberant, as to speak with confidence? Which of us is so unrelated to Reality to condition or postpone or restrict all the help we can give to Russia?

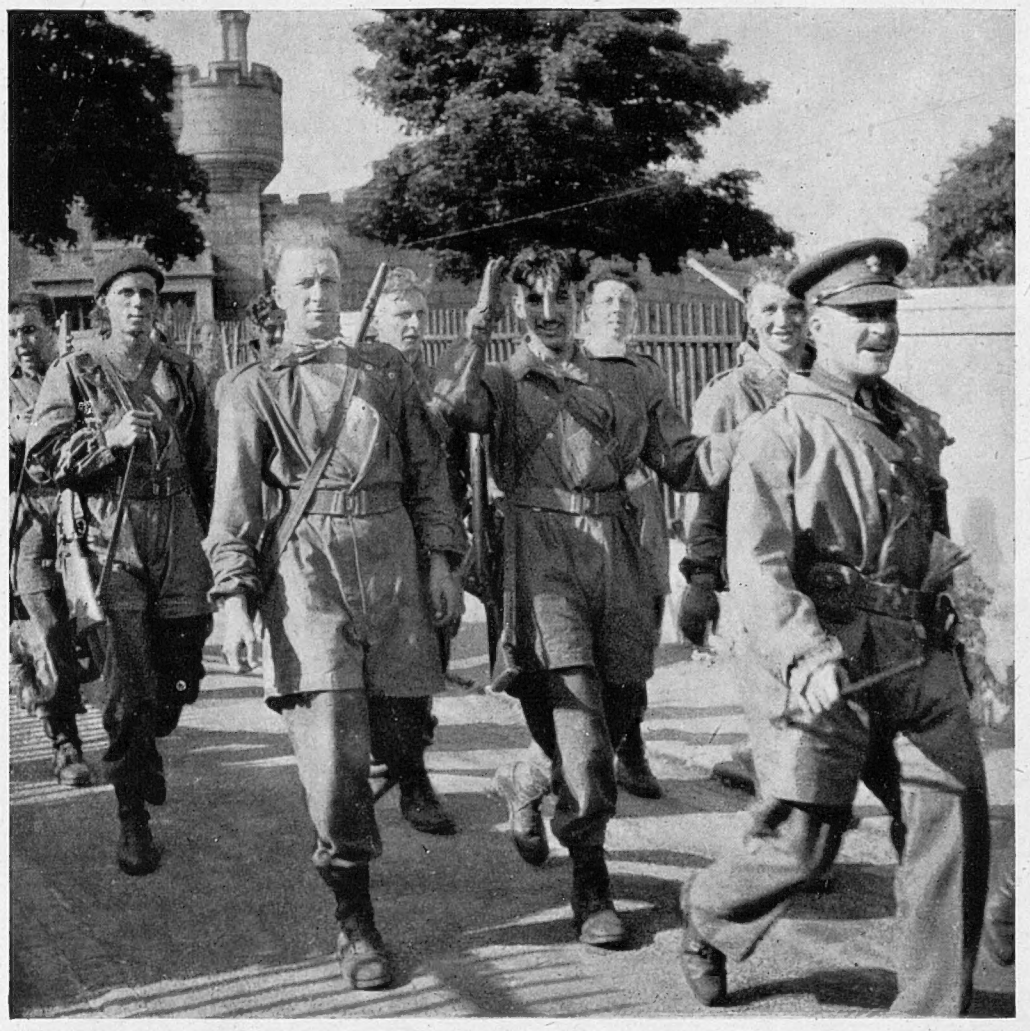
First Reactions.—What did they think about it, those still undevoured flies in Hitler's web, when first they heard of the latest and supreme example of his sense of honour and standard of political morality? At first, I suppose, they could not and would not believe it. Then when the "sickening technique" was announced and the invasion reports came in, in one more undeclared war, the *truth*, to which they alone in Europe and the world had still remained obstinately blind, must have struck them and jolted words from their tongues. In this impenetrable mystery of the working of the madman's evil mind, one thing only is certain. Outside the Nazi ring in the Reich there can be no person living who would pay a token shilling for Hitler's bond for a million sterling. Stalin, if he be familiar with Shakespeare, could hardly find a better citation than Wolsey's. He, like the rest, supped with the Devil and found his spoon all too short. He ventured, relying on his shrewdness, "like little wanton boys that swim on bladders, this many summers in a sea of glory, but far beyond my depth." "Against that man, cleverness was no good. Double-crossing was countered by treble-crossing. Churchill warned me. And time and again those contemptible, hated, capitalistic British, with their detestable honesty, held out the hand of friendship which I have spat on and spurned time and again, and I might have grasped it and saved my name and edifice. Is it in bitter truth better to be honest than clever? Is it too late?" And the Turkish leaders—the last to fall into the web before the final showdown? Were honour and courage and the well-earned name of *gentleman* a price too high to pay for a slavery that had not now even the shadow of even temporary security? "And we might to-day have stood beside our friends on the side of honour, and earned our right to play our part in the purge and reconstruction of a poisoned and a broken world." Is it too late to hold off that (unknown) taunt of Henry IV: "Hang yourself, brave Crillon; we fought at Arques and you were not there." And America? That part of the American nation which still wonders whether after all the Atlantic is not still wider than a mere moat and the British Fleet still largely active and in being, even if Hitler's promise that he has no idea of attacking the New World has become a little less dependable? Again: "Hang yourself, brave Crillon, if the battle of Arques be won and you still remain in your tent." What Japan is thinking I do not speculate upon. Perhaps the next few days will show us. As for the little fishes, with their petty motives, I can believe that the conscience of the Finns is as uneasy as that of the Rumanians and a deal more unhappy at their loss of honour. And Vichy? And Mussolini? . . .

Britain and Europe.—To do Hitler and Ribbentrop an undeserved justice, there is a certain unconscious truth in their theory that Britain has no place in Europe. If one surveys the sad and dreary chapters of British diplomacy in Europe during the past decade, one may fairly say that (with one or two small and brilliant exceptions) we have found among European Governments a total inability to understand our language. It has been the story of Babel exaggerated. What is true of Governments may not be true of a majority of the peoples. It may be in these days that peoples do not have the Governments which they deserve, but few of the peoples of Europe to-day have proved, since Hitler came to power, of such resolution and unity as to be capable or desirous of putting in power a Government which would strongly and faithfully implement the nation's creed in regard to its honour, dignity and safety—if indeed those peoples still retained a creed. The words of our language which (save as excepted) seemed to have no equivalents in the dictionaries of Europe of late are honour, moral courage, unity of will, of resistance, of sacrifice. Yet once *we* borrowed a word which best summed up these qualities in a portmanteau—*esprit de corps*. "The French had a word for it." I think the Turks *had* a word for it. Too late, we find (and many European peoples find) that majorities of the enslaved peoples of Europe have in bitterness and regret found again these lost words in their discarded dictionaries. In that decade, scorned often, fooled repeatedly, ploughing the sand which we took for tilth, we blundered along in our diplomacy, building on sand, sowing on sand, the "honest fool" of Europe. Always we assumed we were meeting on the common ground of the "gentleman's code," and time and again our enemies laughed in their sleeve and our *soi-disant* allies made secret reservations not in that code. If we had had leaders so cynical, so realist, so steeped in bitter experience and up-to-date information, as to foresee the totality of the Babel which our diplomatic relations with Europe must be, would there have been one such leader who would not have hankered back to 1904, and sought by every means in his power to wrench out, and not further to entangle our roots in the destinies of Europe? I wonder if any period of European diplomacy has ever brought to Britain so sharp and fearful a disillusionment.

"I Endeavour to Give Satisfaction."—It is good news if P. G. Wodehouse, long in durance vile in occupied France, is free, or as free as a man of feeling, and with the power to think for himself, may be in Nazi territory. It is not good news that he is "shortly to broadcast a weekly talk from Berlin on his experiences of the clemency and broad-minded toleration of the Nazis." But then, that is Berlin news and we usually regard Berlin news as neither good nor bad but a red-herring. I do not think P. G. Wodehouse would buy his "freedom" at such a price. That is not Jeeves's way of giving satisfaction. There are some queer fish among Wodehouse's Peers' Gallery, but I have not observed among the portraits a Lord Haw-Haw. In short, I think the price of P. G.'s freedom has been greatly exaggerated by Dr. Goebbels. I think P. G. would remain a Briton to the end, whatever the discomforts entailed. At least, I think he would "have a dashed better stab at it, Governor," than dear little Gobbles suggests.

THE OLD STAGER

PARATROOPS



BRITAIN'S PARATROOPS IN ASSAULT EXERCISES : After the heat of battle, the picked troops leave the castle they have "captured," led by a paratroop officer

BRITISH PARATROOPS IN ACTION : Scaling a battlement, whilst comrades hold off the enemy. (*Note* map tucked in one man's belt) : Few stories have so gripped the imagination of British people as that of the creation of our own corps of paratroops. Both Russia and Germany preceded our own Army in the creation of such corps, but neither has better or more determined men, late though we may be in the adoption of modern ideas ! The training of these hand-picked men is proceeding rapidly, to make up for lost time ; and already they have demonstrated their capacity in the biggest military exercise ever held in this country. A few days ago, some 170,000 troops, including 20,000 Home Guards, were engaged on a 52-miles front. During this exercise, the paratroops were amongst the invaders : although about 100 were disposed of either in the air or on the ground, the remainder got completely away from the aerodrome where they were landed, and wrought great havoc

OVERALLS SIMILAR TO THOSE WORN BY R.A.F. CREWS, stout boots to protect the ankles when landing, woollen cap in place of helmet, parashot badge on shoulder, and rifles *plus* Bren gun—these are all part of the equipment of British paratroops. Added to which, the men themselves are all fine specimens ; each is a volunteer, and has been hand-picked for courage *and* brains

THE DAYLIGHT SWEEPS OVER FRANCE

The Pilots Who Have Been Driving Back the Luftwaffe in the Biggest Offensive Yet Undertaken by the R.A.F.

A BRITISH FLIGHT-LIEUTENANT, still covered with the fumes of battle, relates to the Intelligence Officer exactly what took place: his hands indicate the various attitudes he and the enemy pilot assumed during the combat

TWO CANADIAN PILOTS DISCUSS THE RAID ON THEIR RETURN: The pilot in the cockpit comes from Toronto—he has bagged eight of the enemy in four outings

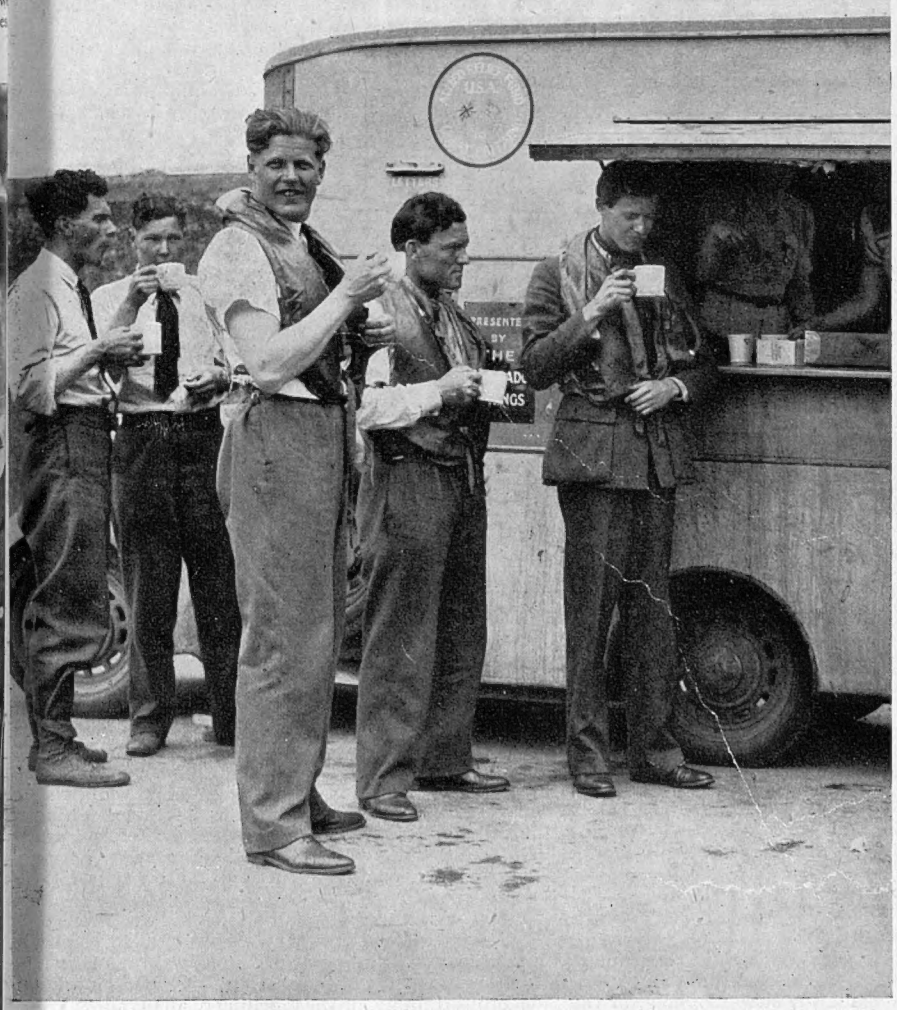
The weight and daring of the Royal Air Force in their sweeps across the Channel and over Nazi-occupied Northern France have pushed the *Luftwaffe* back fifty miles from the coast. Day and night, machines of the Fighter and Bomber Commands are continuing their relentless smashing of Germany's front-line: besides the destruction of military objectives, our pilots have been successful in destroying three, four and five times as many enemy aircraft as we have lost during these operations. And this is not solely due to the enemy's preoccupations in Russia: the plans had been laid some time ago. Now that our production (of all types) of aircraft is growing so rapidly, the R.A.F. are launching out on to the big-scale offensives promised some time ago by Mr. Winston Churchill. The official pictures which we reproduce here, showing some of the men who are carrying out this great work in the skies, have only just been released for publication

JUST OFF FOR A SWEEP OVER ENEMY TERRITORY: The eight swastikas marked on the fuselage tell their own story

RETURN AFTER THE RAID: The tail of a British machine which suffered slight damage during a sweep over France

THE GENTLEMAN FROM TORONTO EXPLAINS HOW IT HAPPENED: This Canadian sergeant-pilot also figures in the picture at the top of the page. He is describing how he got one Nazi definitely and another "probable" in his latest flight, thus bringing his bag up to eight in four raids

THE MEN WHO ARE DOING THE WORK : Whilst the pilots confer with the Intelligence Officer at the end of a daylight sweep, mechanics hastily overhaul the aircraft



FIRST COMES THE REPORT TO THE INTELLIGENCE OFFICER, then comes a cup of tea at the Y.M.C.A. canteen : on the cross-Channel sweeps, "Mae Wests" are worn by all—the rest of one's flying-kit is a matter of personal predilection !

FIGHTER PILOT : A flight-lieutenant just after a raid. Note the unbuttoned top button of the tunic—the unofficial indication of an R.A.F. fighter as distinct from a bomber, or other, pilot

THE BATTLE-FRONT ALONG ITS WHOLE LENGTH—FROM PETSAMO TO THE BLACK SEA, showing the main thrusts and counter-attacks from June 22 to June 30—*A special "Sphere" map*

Germany's unannounced assault upon Russia began at 4 a.m. on Sunday, June 22, and has continued with varying success and failure during the period under review here, which covers only the first week of fighting. Attacks were made at numerous points all along the new 1939 Russo-Polish frontier and towards the Ukraine by way of the River Pruth on the Bessarabian frontier. The initial thrusts of Sunday secured some successes, with the crossing of the River Bug at several points. During the opening days various unsupported claims were made, but towards the end of the week it became obvious that thrusts were being attempted in the following districts: into the Baltic Provinces by way of Kaunas (June 24), Shaulai (June 24-27); through Northern Poland by way of Grodno (June 23-25) and Baranovice (June 26, 27 and 28) and Brest Litovsk (June 23-24); Central Polish frontier at Luck (June 28-29), when the heaviest tank battles (thousands on each side) took place; the Southern Polish frontier around Brody, Lvov and Przemysl, where German advanced forces were heavily counter-attacked; on the Bessarabian front, where several German attempts to cross the River Pruth were made. This direct line of attack towards the Ukraine appeared to be the least successful of the enemy's thrusts. The chief enemy advances had been to the north and south of the Pripet Marsh country through Grodno and Baranovice to the north, and Luck, to the south. At both these sectors, the Russians were massing their opposing tank divisions and claimed to have surrounded the enemy tanks and to be holding up the infantry advances which the enemy was attempting to develop

THE GERMAN

And the Preparations Made by Hitler Over a Period of Many Months

NOTHING is better established than the fact that German success, both in this war and the last, depends upon long and careful preparation.

Ever since last autumn there have been indications that all was not well between Russia and Germany. In spite of the tremendous reception given to M. Molotov, on his State visit to Berlin, when the Soviet flag hung side by side with the swastika, tension was developing. Stalin had shown some signs of independence and had actually refused the invitation to join the Tripartite Pact in November.

On looking back over the past months, it is now evident that Germany was preparing for a great attack upon the whole of the western frontier of Soviet Russia, from the White Sea to the Black Sea, if need should arise. The first sign of this long-thought-out plan was the Nazi interest in Finland, an obvious jumping-off place for an attack upon Leningrad. Last September permission was obtained for German troops in Norway to pass through Finland, with their war materials, on the plea that it was much more convenient for troops on leave. The British Government protested against this breach of neutrality, and were then informed that the troops were restricted to one highway and that all arrangements were carried out under Finnish military authority. But it obviously made the first loophole for the entry of German troops.

German activity was very noticeable in November on the Black Sea coast, where great roads were being made from Bucharest to Constanza and Galatz. This caused the Soviet Government some uneasiness, and offers were made to Bulgaria of mutual assistance. By this time, however, the Bulgarian Government had become definitely pro-Axis, and visits were being paid to Vienna. The Russian Fleet was reviewed by Admiral Kusnetzoff in February and officers impressed to encourage greater discipline, to keep at sea in all weathers and to be "tireless" in training both themselves and their crews.

The period of friendship with Bolshevist Russia was obviously changing in March, when it was noticed that Hitler Youth were allowed to shout anti-Communistic slogans at public meetings. All Russian émigrés were encouraged, especially the Ukrainians, who were against the Soviet Government, wanting a separate Ukrainian republic. Under Koropadsky, a military organisation was established in Czechoslovakia, with headquarters in Berlin. Training camps for Ukrainians were set up, the aim being to obtain six divisions to be ready to fight with the Nazis to obtain Ukrainian freedom. The freedom, of course, would be limited by German control, for one of the main reasons of an attack upon Russia was the gaining of the wheat-fields of the Ukraine.

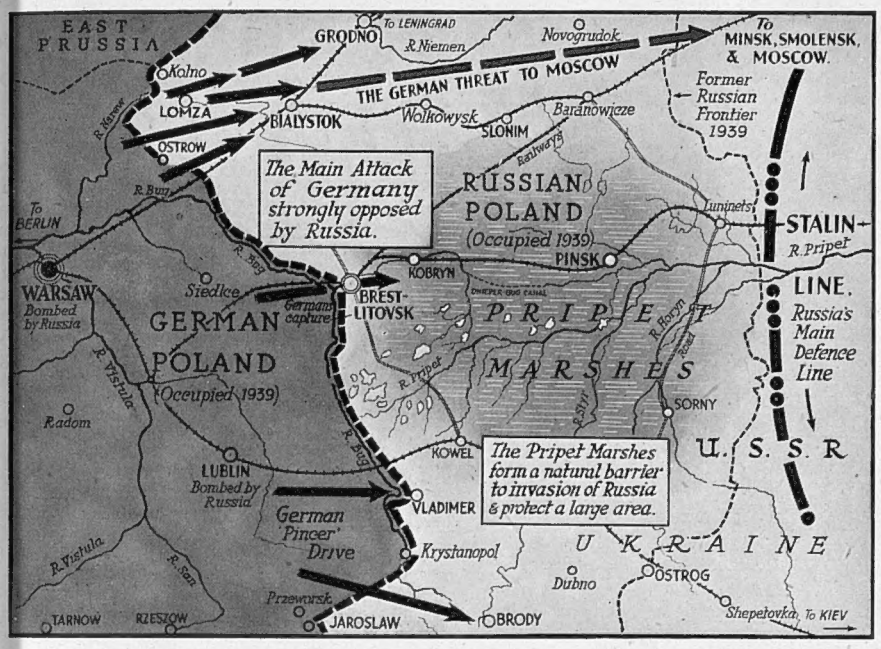
In April Mr. Churchill made a statement that Hitler might suddenly switch his campaign in the Balkans to the granary of the Ukraine and the oil-fields of the Caucasus. Soviet Russia was aware of the danger signals—it is now known that the British Government gave due warning from their own sources of information. Stalin took the opportunity to make a treaty of non-aggression with Japan, hoping that it might prevent Japan from any action in support of the Axis. Russian troops began moving to line the whole of the western front, coming from Siberia, shortly after the signing of the Japanese treaty.

News came that German women and children were being evacuated from Warsaw and the places east of it. It was also learnt that Dr. Todt, the designer of the Siegfried Line had been inspecting the fortified line on the German-Russian frontier. Military experts were puzzled at the lack of secrecy.

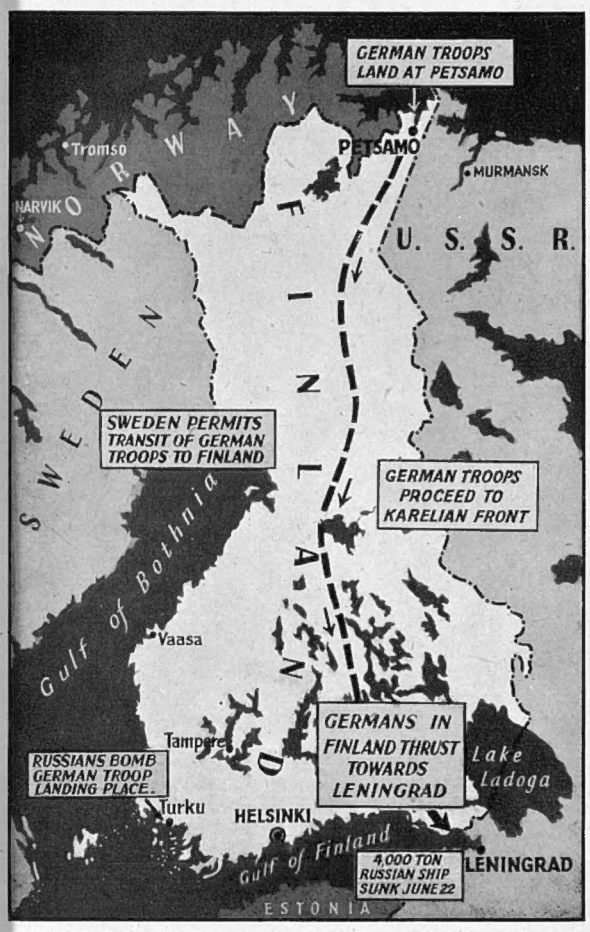
Throughout April, however, more and more scraps of news appeared, showing that the German war preparations were extremely thorough. The fortified line ran through Poland, along the Carpathians and into Bohemia, where parts of the Czechoslovak Maginot, dismantled from their original positions facing Germany, were built into the new line against Russia. Factories in the occupied countries have been busy manufacturing wagons and railway lines suitable for the particular gauge of the Russian railways. And, above all, the propaganda machine was tuning up to an outburst against Communism. Hitler was throwing off the mask of friendship and returning to his old role as the protector of Europe against the Bolsheviks, hoping to gain the cordial friendship of Spain, Portugal and Vichy France. At the beginning of May Stalin took the post of Prime Minister, assuming for the first time an official position. Hitherto he had been the leader of the Russian people, without any definite executive position, and this unexpected step caused considerable speculation. Was he taking the post to be ready for an emergency requiring quick and important decisions? The Russian Army on May 21 was told to "prepare daily for war," and great exertions were made in the construction of pill-boxes along the frontier and in vigorous training for the repelling of an invading army.

On June 14 Soviet Russia denied that any German demands had been put before them and went so far as to say that Germany was keeping strictly to the Pact, and that the Nazi troops massed on the frontier

THRUST AT THE HEART OF RUSSIA



THE REGION OF THE PRIPET MARSHES : These form a natural barrier to the invaders : consequently the Germans have sought to by-pass the Marshes, both to north and to south in their advance towards Moscow



THE POSITION IN THE FAR NORTH : This is where the threat to Leningrad is most real : and it is here that the Finns are reported to be acting in concert with the Germans along most of the Karelian front

had no concern with Russia. At the same time no less than 140 Russian divisions had gathered along the western frontier facing any possible attack. Hitler remained silent, but Rumanian troops were moving into positions in Moldavia, roads crowded with transport ; troops from occupied countries recalled, till 130 German divisions were ready for advance. Rumours of the demands Hitler was going to make, based largely upon imagination, were spread about—including such items as the demobilisation of the western Russian army, the control of Ukraine agriculture, the use of the Soviet shipyards in the Baltic, and a share in the Caucasian oil. On June 16 and 17 the news persisted in recording the belief that Stalin was ready to give in, but that there was strong opposition to this policy by the Red Army. Moscow was reported to be very calm and the country generally was quite undisturbed.

After long consideration Turkey at last signed a treaty of non-aggression with Germany on June 18, and at last Hitler was ready. Finland had fallen to his tempting and the general hatred of Russia. At least two divisions of German troops were already in Finland, and the Finns who had fought so bravely alone against the might of Russia, unhelped by Germany, were now being lured into assisting Hitler, who could invade Russia all along the frontier. On June 22, without any declaration of war, the German armies attacked.

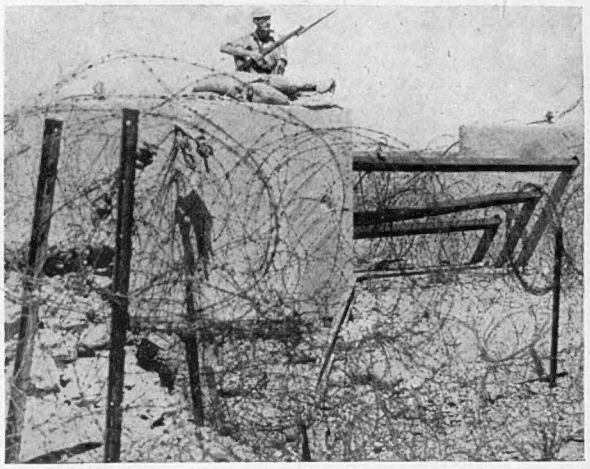
THE HEART OF UKRAINE : A GENERAL VIEW OF KIEV : This is obviously one of the objectives of the Germans—it is in the direction of Kiev that a vast force of German tanks is thrusting by way of Rava Russka and Luck.

THE RUSSIAN NAVAL BASE OF TALLINN IN ESTONIA : Heavily bombarded from the air by the Germans, Tallinn (formerly known as Reval) has been reported to be in flames. Strong attacks were launched against the harbour, which had been serving as a naval base in the Upper Baltic

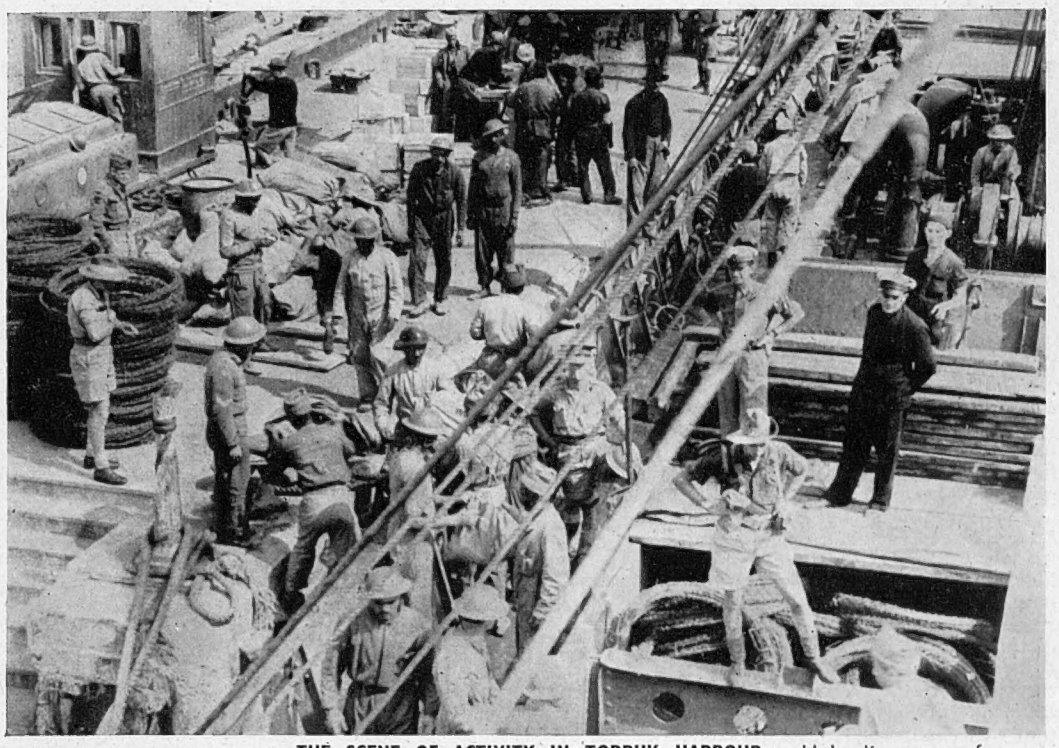
RUSSIAN UNITS OF THE RED ARMY MARCHING THROUGH VILNA : This city lies in Poland, within the area taken over by Russia when the country was partitioned soon after the outbreak of the present war. It is on the road to Moscow, and according to the Russian communiqués, separate groups of German tanks forced their way through the defensive lines in the neighbourhood of this city

INSIDE TOBRUK

New Australian Official Pictures of the Defence of the Stronghold in the Western Desert



WIRE DEFENCES ACROSS THE EL ADEM ROAD : This road approaches Tobruk : it is strongly guarded by barbed-wire defences and blockhouses. The sentry seen on guard here is Private Earl, who comes from Waverley



THE SCENE OF ACTIVITY IN TOBRUK HARBOUR : Unloading stores from a transport for the further defence of the fortress. Thanks to the Royal Navy, the sea communications have been kept open all through the heavy fighting in the vicinity of the port

THE CROWDED SCENE WITHIN THE PERIMETER DEFENCES : German and Italian prisoners captured by the Australians in the country surrounding Tobruk. The Germans were members of a "Panzer" regiment : they now share quarters with their Italian allies behind the barbed wire in the desert

PREPARING AN ISSUE OF THE "TOBRUK TRUTH," popularly known to the Australians as "The Dinkum Oil" : this journal is published regularly and keeps the defenders informed of events, thus countering the spread of rumour amongst the troops

HOW THE BRITISH TREAT THEIR PRISONERS : This German airman was shot down in the Western Desert. His thigh was broken ; his captors immediately improvised an operating theatre with the aid of the pilot's parachute ; using materials from the wrecked plane, he was given first-aid treatment before being transported further

MAIL-BAGS SENT BY SEA FROM THE BASE POST OFFICE IN EGYPT arrive at the building which now serves as the Tobruk Post Office

Australian and other Empire troops defending Tobruk have held the town against the heaviest attacks launched against them by the Axis air and mechanised forces. The Royal Navy has all the time kept the sea communications open, and within the town the defenders have developed a well-organised community life

HITLER'S APPETITE FOR ISLANDS

"No Island is Impregnable," said Göring: and Hitler has put this Precept into Practice Whenever he has Needed Ramifications for his War Machine . . .

By FERDINAND TUOHY

THE war's momentum has for the present moved towards the biggest block of solid land on the surface of the globe. But islands will soon loom again in the picture. They cannot long remain outside a conflict in which the most important factor is an island whose survival is closely linked with the fate of islands in many parts of the world.

The would-be world conqueror may shortly attempt to by-pass the Mediterranean and reach the Persian Gulf overland. This would be a monumental feat of modern arms. But to attain his far-flung goal he will have to return to the bridging of sea and air. And that will bring him back to islands.

A host of Norwegian, Danish, Dutch, French and British (Channel) islands fell ripely to Hitler last year. He fortified some of them, nothing more. But now he has developed an appetite for islands consequent on his dictum that "no island is impregnable" having been borne out in the case of Crete. In an address to the *Luftwaffe* after Crete, Göring echoed that no island was "unconquerable." Yet it would seem that Führer and Reichsmarshal are far too sanguine and sweeping, there being all kinds of islands all over the world.

Hitler is attracted to islands because, thanks to the new airborne methods, they can be made to act as stepping-stones, bringing him closer to his opponent or to his goal, even when he doesn't have command of the sea. Islands can be made to serve as bridgeheads, as Sicily was used to start General Rommel in the direction of Egypt, or as Crete is being employed to bring the Nazis nearer to Alexandria. Again, the Nazis think they are capable of turning specific islands swiftly into air fortresses founded on a few well-protected airfields and shore defences.

Hitler has admittedly placed a question-mark over one type of island. Up till now it was accepted that islands of the coastal variety couldn't be grabbed from their adjacent mainland except as a result of successful sea operations. Yet in the face of a dominant fleet, the Nazis hopped on to dozens of Greek islands, because the Royal Navy could not endure the mounting losses from air attack that a defence of the Ægean archipelago would have entailed.

This island-hopping has focussed attention on the possibility of Hitler attacking islands round our coast, as part of a general scheme of invasion, of "getting closer." If Britain is herself an island fortress, within the fortress are many smaller, coastal islands—in point of fact, several hundred, though, fortunately indeed, only the very smallest number offer any scope to a swooping invader.

Take the Isle of Wight. It is only sixty miles from airfields round Cherbourg, the same distance that separated Morea from Crete, and its downlands lend themselves to crash landings in bulk. As a wedge towards Portsmouth and Southampton, with a view to landing heavy material on the mainland, Nazi possession of Wight could be heavy with consequences. *But* the Isle of Wight is enclosed in the defences of Spithead; it is really no longer an island in the military sense.

The Scillies are 25 miles from Land's End, and the nearest Germans are a little over 100 miles away, on Ushant. Only five of the islands, out of forty, are inhabited: most are rocks. What defences there may be is none of my business, but obviously the 1800 inhabitants cannot feel as protected as Wight's much larger population. Why didn't the Germans seize the Scillies when they took the Channel Islands? Presumably because the group wouldn't have served any useful purpose at that time, and because the Germans would have experienced great difficulty in maintaining themselves in defiance of the Royal Navy, to say nothing of the shoals, reefs, and exposed and rocky surroundings that make of the Scillies no beckoning "Crete."

Landing is freely possible in Eire. Nothing has shown that local defensive preparations could withstand assault of Crete intensity. Courage is emphatically not enough without the tools and training. Airfields already exist in Eire, and by garrisoning them, and by swiftly conjuring others, as the Nazis can do, the Germans might get between Britain and America for many crucial weeks before the British could dislodge them. On the other hand, Eire is 300 miles from the nearest Nazi airfields in Brittany, and invaders, once landed, would have to rely paramountly on airborne supplies and reinforcements.

Lundy used to attract French privateers, who would then harry shipping in the Bristol Channel. But could the *Luftwaffe* do anything with it? Three miles by one in size, Lundy is hilly, cliff-bound, with very little open pasture land. It does not seem a greater cause for worry than Anglesey, which is an island only in name. But the Isle of Man does make one pause. Its position in relation to shipping, and to Ulster, Lancashire, and the Clyde, is so important that nothing can be left to chance. The Nazis, who boast that nothing is impossible, might be lured by Man's harbours, communications and self-sufficiency, to say nothing of several thousand wartime internees. As a feint or diversion synchronising with a general invasion, the Nazis might well hit on Man, *if* their bases weren't so very far away.

I know nothing of the Inner or Outer Hebrides, but the Home Fleet does, and it is not unlikely that Admiral Tovey has ordered a renewed study of any chances of airborne swoops in the neighbourhood, since a Nazi foothold in these latitudes might be directed against our life-line to America. The Nazis would have to come 400 miles from Norwegian airfields, and where they could hope to effect a landing—save possibly on Lewis, Skye, or Islay—and maintain themselves against immediate attack, cannot be answered by the closest study of maps or documentation.

The Western Isles extend for 130 miles, and run into 500 islands, only a fifth of them inhabited, and most of which are so much rock. The bigger islands are a combination of mountain moorland and lochs. Very forbidding to a sky invader, but very valuable, this Scottish island world, in any encircling movement of Britain, such as Hitler loves.

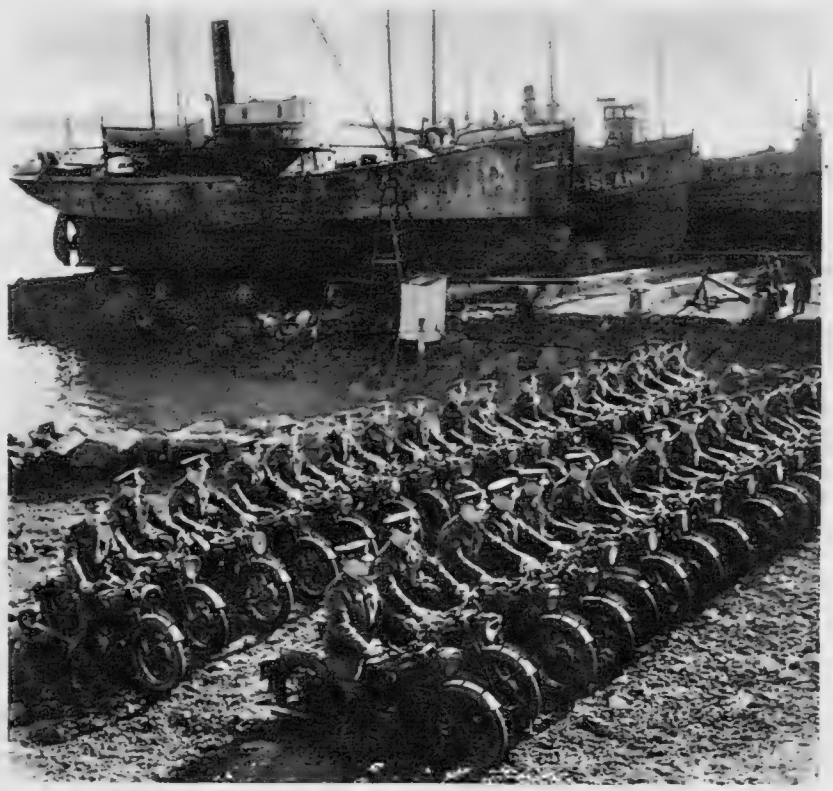
The Orkneys are low and bleak and protected by whirlpools and twenty hours of daylight at this period. About half of the seventy or so islands are inhabited by 25,000 sturdy crofters and fisherfolk. The presence of Scapa Flow doubtless has its effect on the defensive arrangements of the whole group. But, if an enemy intends to land in this region, why not land outright on the Scottish mainland? An answer could be the attraction of Scapa and the Nazi quest for the easiest way to establish air fortresses—on islands.

But the Nazis would assuredly be more attracted by the Shetlands, should they set about drawing closer to North Britain and to Atlantic communications just beyond. The Shetlands are a mere 200 miles, hardly more than an hour's flight, from Bergen. Our protecting squadrons would have to fly almost as far. And there is a big island, Mainland, measuring 54 miles by 21. The Shetlands as a whole are hilly and irregular, treeless and barren, and only about a quarter of their hundred islands can bear population. But they have at least two good harbours and endless sheltering firths.

The Faroes, which we took over from Denmark last year, really belong to a wider range of islands, more oceanic in character, and including Iceland, the Azores and the Cape Verde Islands, in each of which President Roosevelt is so interested. In fact, America's interest in islands is just as acute as our own, as was shown when Washington recently as good as drew the teeth of the Vichy-Caribbean islands of Martinique and Guadeloupe. Prior to that, our leasing of bases to the United States primarily involved islands—Trinidad, Barbados, Bermuda, to name but three instances. And, thousands of miles away, America pours material into the island of Singapore, and strengthens her island bases of Pearl Harbour, Wake, Guam, and Manila.

In this Hemisphere, the Americans might be prepared to support us in Iceland, in certain circumstances; even as they have determined that Hitler is not going to slip in ahead of them at the Azores and Cape Verde Islands—these latter 300 miles on the way to Brazil. The liner-full of German "refugees" that Darlan sanctioned for Martinique was an eye-opener in Washington, which concluded that maybe Crete was not the last word in Hitlerian technique in regard to other people's islands. The Portuguese, for example, say they are perfectly capable of keeping everybody and anybody off their key Atlantic islands, and have been sending out reinforcements to the Azores and Cape Verde. The Americans would love to believe the Portuguese are so capable, and ask nothing better, but they don't intend to take any risks.

How alive Hitler is to the uses to which islands may be put was shown by his lightning seizure of Lemnos, at the mouth of the Dardanelles. This was instrumental in causing Turkey to harken once again to Papen, which was what Hitler wanted should happen, and quickly, in order that Turkey should be gently disconnected from Russia in harmony with the time-table of attack on that country.

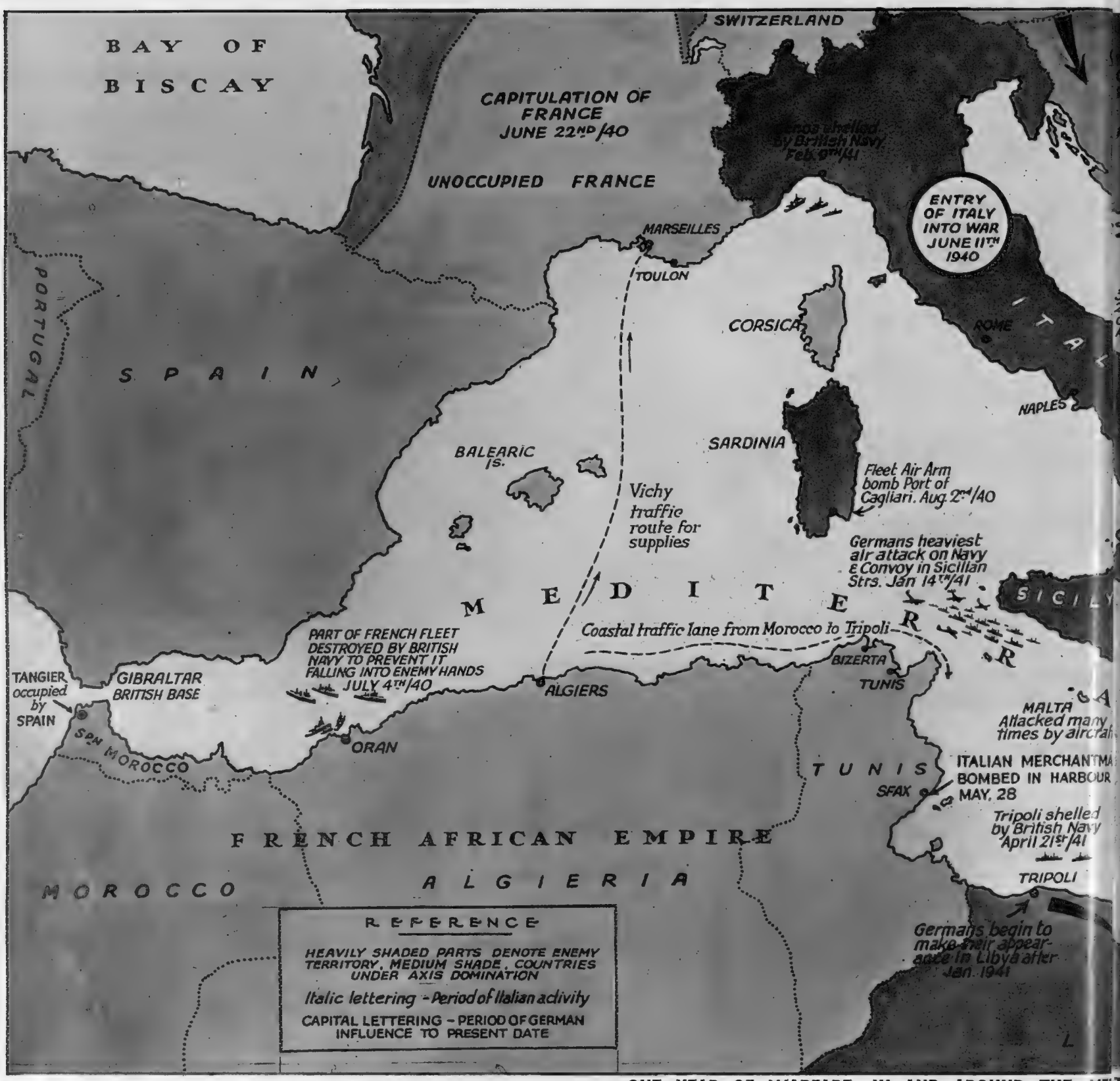


AN ISLAND HELD BY BRITAIN, YET COVETED BY HITLER: British military policemen drawn up on a quayside in Iceland before setting out on the day's duties

THE SHETLAND ISLES ARE ALSO FIRMLY HELD: A battalion of Highlanders in training: the mechanised section sets off for exercises

IN NORTHERN IRELAND: Men of the Royal Berkshire Regiment with their Bren-carriers crossing a minefield during the rehearsal of an attack

b



AIR OPERATIONS AGAINST ENEMY SHIPPING IN THE MEDITERRANEAN : An American-built Glenn-Martin Maryland reconnaissance aircraft sighted a convoy of motor-vessels escorted by six destroyers. A force of bombers was at once sent to the attack : the leading Blenheim selected as its target the 5,000-ton ship seen burning from stem to stern in this official Air Ministry picture. Other aircraft bombed a heavily laden ship of 8,000 tons, which exploded so violently that all the attacking aircraft were badly shaken. Debris was thrown hundreds of yards in all directions, and a dense column of smoke rose 1,500 ft. high. In this picture one of the enemy destroyer escort is seen circling at high speed to avoid the falling bombs : all six enemy destroyers kept up a heavy fire throughout the attack

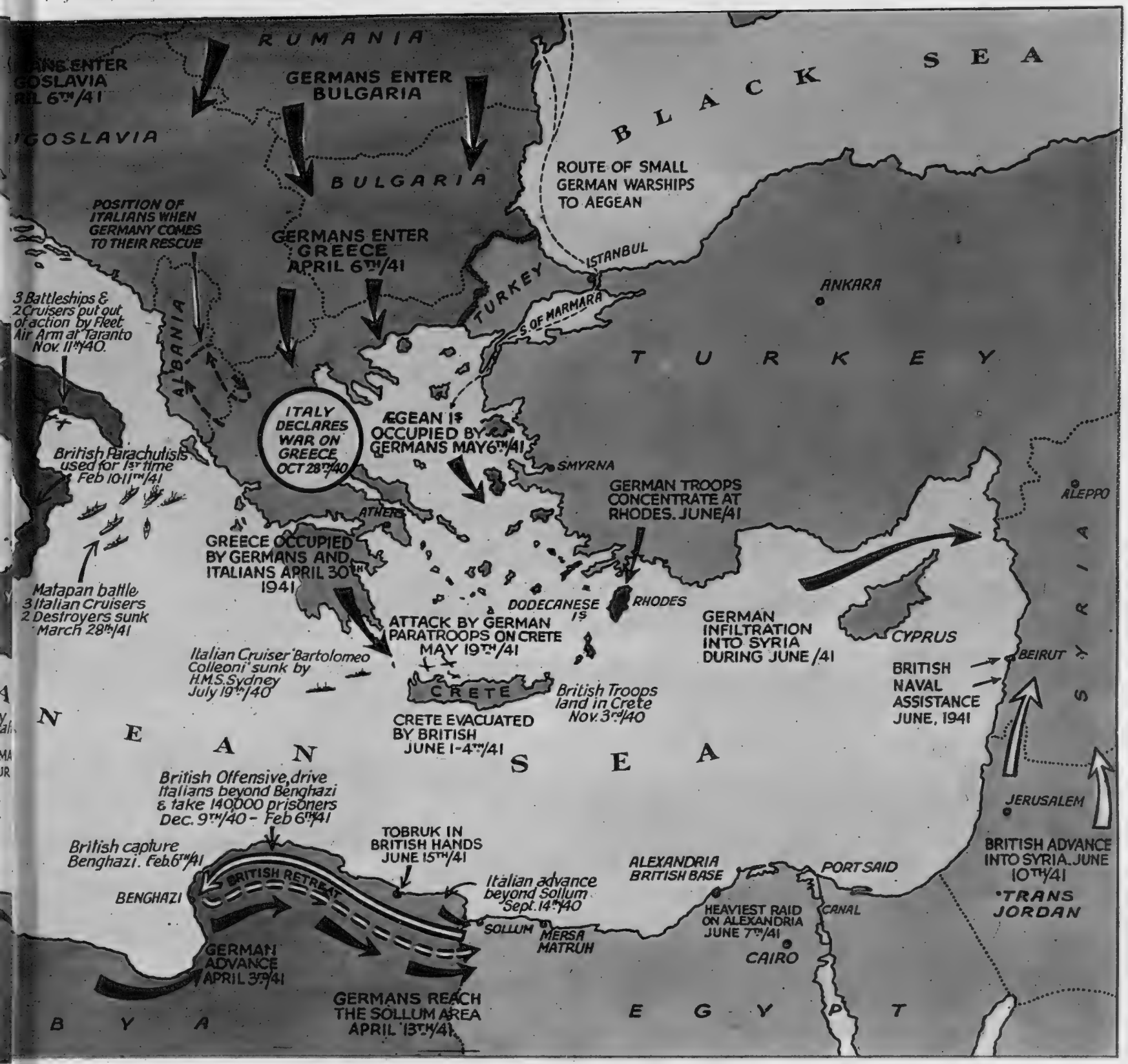
ONE YEAR OF WARFARE IN AND AROUND THE MEDITERRANEAN
against the British and the French ; a special "Sphere" cha of t

WAR in the MEDITERRANEAN

A Diary of Leading Events Since June 1940

1940

June 11—Entry of Italy into the war. R.A.F. bombers began operations in Libya, East Africa and Abyssinia.
June 12—R.A.F. attack Tobruk, heavily damaging old *San Giorgio* in the harbour.
June 14—Fort Capuzzo bombed by R.A.F.
June 15—Cruiser H.M.S. *Calypso* sunk by Italian submarine.
June 17—Four raids by Italian bombers on Malta.
June 17—[France asked for an armistice.]
June 21—Another attack by R.A.F. on Tobruk—warship hit in harbour.
June 29—[Marshal Balbo killed.]
July 5—Gibraltar raided for the first time.
July 9—Naval action against Italian Fleet—one Italian destroyer and one submarine sunk, but Italian Fleet retired at full speed.
July 19—Italian cruiser—*Bartolemeo Colleoni*—sunk by H.M.A.S. *Sydney*.
August 2—Fleet Air Arm attack aerodrome and harbour at Cagliari, Sardinia.
August 28—Italian tanker carrying petrol and lubricating oil to Dodecanese Islands sunk.
September 5—Dodecanese Islands shelled and bombed. Moritza and Calato aerodromes in Rhodes shelled ; Scarpanto bombarded.
September 14—Italian Army advances beyond Sollum.
October 4—British Navy sweeps whole of Mediterranean, meeting no opposition from Italian Navy.
October 12—H.M.S. *Ajax* sank two Italian destroyers off Sicily.
October 28—Italy makes war upon Greece.
November 3—British forces land in Crete.
November 7—R.A.F. attack Brindisi and Bari.
November 11-12—Attack on Taranto harbour by naval aircraft : one battleship badly damaged, another beached, and two Italian cruisers badly damaged.



TERRANEAN since June 1940, when Italy entered into hostilities
of the principal events on land, sea and in the air

November 13—R.A.F. made another attack on Taranto harbour.
November 17—Bari bombed—oil refining plants set on fire.
November 27—Italian cruiser and two destroyers damaged in chase near Sardinia.
December 9—British start offensive in Libya.
December 11—British Navy assists army round Sollum.

1941

January 10—German dive-bombers, from their base in Sicily, attack British naval forces protecting convoy carrying supplies to Greece. H.M.S. *Illustrious* damaged, but convoy reached Greece safely.
February 4—Genoa bombarded by the British Fleet. Ansaldo arms works wrecked, oil-tanks set on fire, main power-station put out of action. No Italian planes or warships appeared.
February 6—British forces capture Benghazi.
February 10—British parachutists dropped on Southern Italy.
February 26—Castellorizo occupied.
March 28—Naval battle off Cape Matapan. Seven Italian warships sunk. Italian Fleet was out to intercept British vessels going to Greece.
March 30—British ships encountered fire from French batteries when trying to intercept a convoy which had slipped through Straits of Gibraltar.
April 3—German advance in Libya.
April 6—Germans enter Greece.
April 13—Germans reach Sollum in Egypt.
April 15—Italian convoy of five supply ships and two destroyers all destroyed by British naval force.
April 30—Greece occupied by Germans.
May 4—Italian armed merchant-cruiser laden with troops sunk.
May 19—Crete attacked by German paratroops.
May 27—Sea-air battle off Crete. German attempt to land by sea on Crete smashed.
June 1—Crete evacuated.
June 6—Ægean Islands occupied by Germans.
June 10—British advance into Syria.

THE LATEST PICTURE FROM THE WESTERN DESERT : One of our outposts in the Sollum area on the look-out across the coastal plains. In the distance shells can be seen bursting near the famous "Hell Fire" Pass, which has already changed hands many times during the course of the desert operations

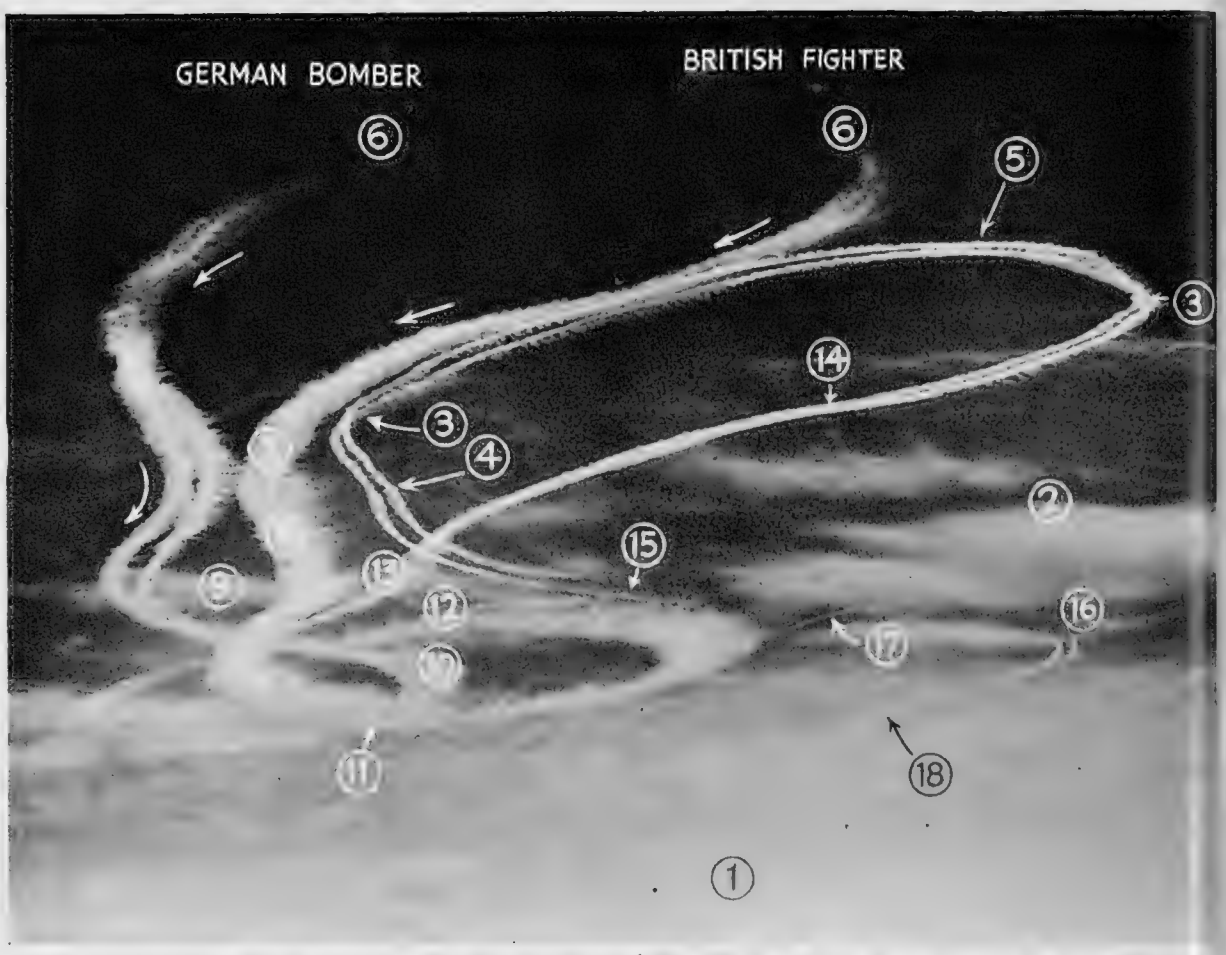
FIGHTING IN THE SKY

A Further Series of Analyses of Vapour Trails by a "Sphere" Expert

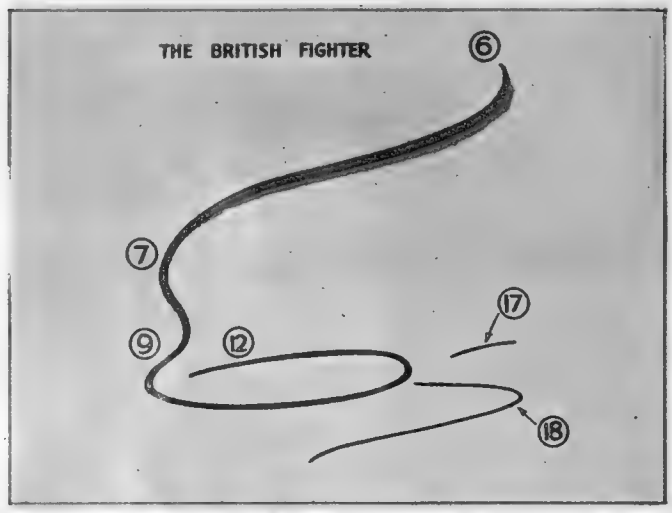
We have previously published in "The Sphere" a series of analytic studies of the fascinating trails traced by fighter aircraft. Here are some further studies, with full explanatory notes

IN the picture *on the right* the trails have the typical cloud-scape background of cirro-stratus at (1) merging to cirrus (2), between heights of 30,000 and 40,000 ft. The trails show an excellent example of the double trail laid by a twin-engined machine. You can see plainly where they twist across each other as he banks on the turns at (3) (3). Again, it can be seen quite perfectly how these twin trails wobble in unison at (4). The "scalloped" edges due to the helical structure are also well shown at (5). This German is a bomber, and not a two-motor Me.110 fighter, for there is evidence that he fires on the beam. The first trails record an attempt by a British fighter to prevent a bomber getting back across the Channel. The combatants first climb into the cold, humid, trail-forming stratum at (6) (6) where the record begins. The trails are here broad and diffused, showing that they are older and becoming dispersed.

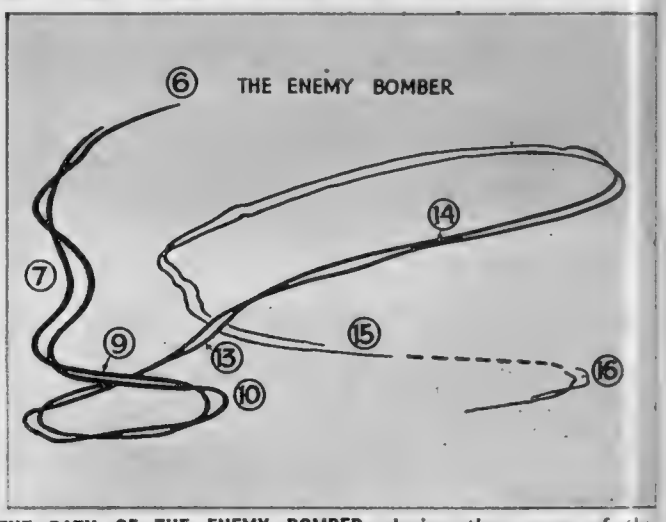
The fighter comes at the bomber, visibly, first at (7), but is balked by the latter's beam fire. Possibly he is a little damaged, for the much greater breadth of his trail at (8) says he has dived considerably lower. However, he then turns and shoots at the bomber crossing his sights at (9). This is plainly shown in the straight climbing approach, the dip under the bomber, and the sharpness of the bank. In response, the bomber turns again towards him to avoid the fatal offer of its tail as a target. He is thus able to shoot again at (11); then from this point the two combatants sweep round in opposite circles. Why the bomber should not turn away here instead is not clearly evident from the photograph; it must be in fear of some other factor. The following great but uneasy reverse sweep at (14) suggests a similar apprehensive manœuvre. But, to hark back, the fighter wheels for a head-on attack at (12) on the approaching bomber, which swerves aside to avoid this at (13). The first fighter than fades from the picture, as noted above. The alarmed bomber enters a dryer atmospheric patch at (15), reappearing at (16) more distantly. The thin and clear line of a newly-made, if faint and distant, single trail now comes into the picture at (17), and he is evidently still in the toils, for this new fighter's trail crosses his at (18)



VAPOUR TRAILS IN THE SKY LEFT BY BRITISH AND NAZI PLANES DURING A RUNNING FIGHT OVER THE CHANNEL: The two diagrams *below* and the notes on the *left* explain precisely what happened during the aerial encounter

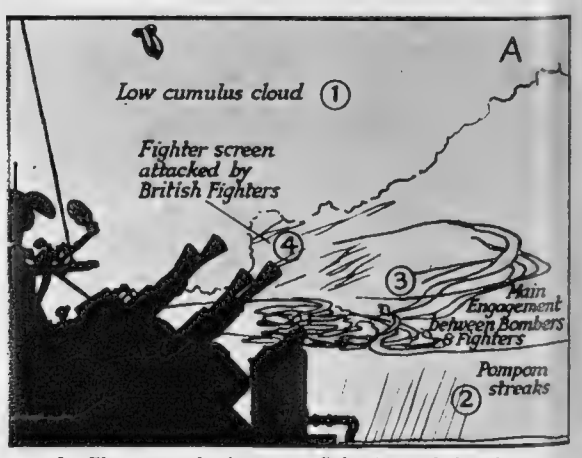


THE PATH OF THE BRITISH FIGHTER, during the course of the combat shown in the larger picture above



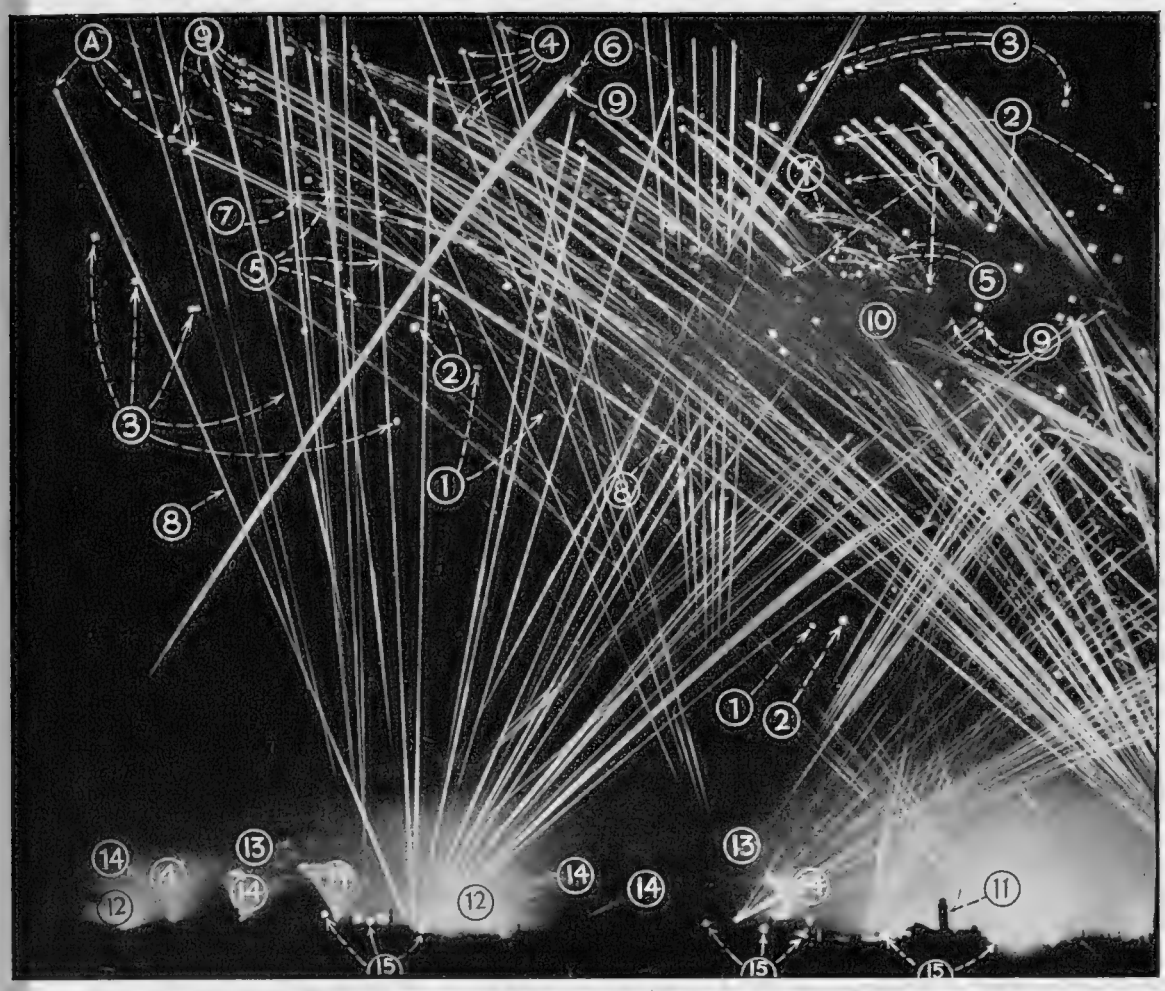
THE PATH OF THE ENEMY BOMBER, during the course of the same combat. (*See also accompanying notes*)

A BATTLE IN THE SKY DURING THE PASSAGE OF A CONVOY THROUGH THE CHANNEL: This complex general engagement is explained in the four small diagrams *on the right* (in which the various phases are shown in diagram form) and in the accompanying notes



A—The struggle between fighters and bombers

THIS is a photograph in trails of a complex, general engagement in the air. (1) is cumulus, low, casting a shadow over the near sea, and not affecting the much higher air battle except that (2) appears to be a hail of shell from pom-poms directed at a bomber which has avoided the mêlée and is probably using it as cover to attack the ships. (3) is the main engagement between bombers and fighters; and (4), very faint, is the still higher fighter screen attacked by further British fighters diving upon them. **B** isolates the main engagement, for clarity. British fighters



A WONDERFUL PICTURE FROM CRETE : Anti-aircraft shells—300 of them—burst around the enemy's bombers

DURING an exposure of only a very few minutes, this photograph records a flourishing, busy crop of A.A. gunfire directed at successive dive-bombers. The small distant shell sparks—as at 1.1.—appear roughly level with the larger near ones—as at 2.2. The bombers are therefore diving at much the same steep angle at which the camera is pointed to the sky.

The isolated dot shell sparks—as 3.3.—are normal H.E. shells; those as 4.4., which cap the visible streaks of their flights are tracers or incendiaries. It demonstrates how minute is the actual motion in the vibration which a spectator can feel so plainly during gunfire that these streaks photograph without much coarsening. The fainter distant ones—as 5.5.—show punctuations, like dotted lines, from this cause. A few streaks without "pin-heads," as 6.6., were still going up when exposure ceased.

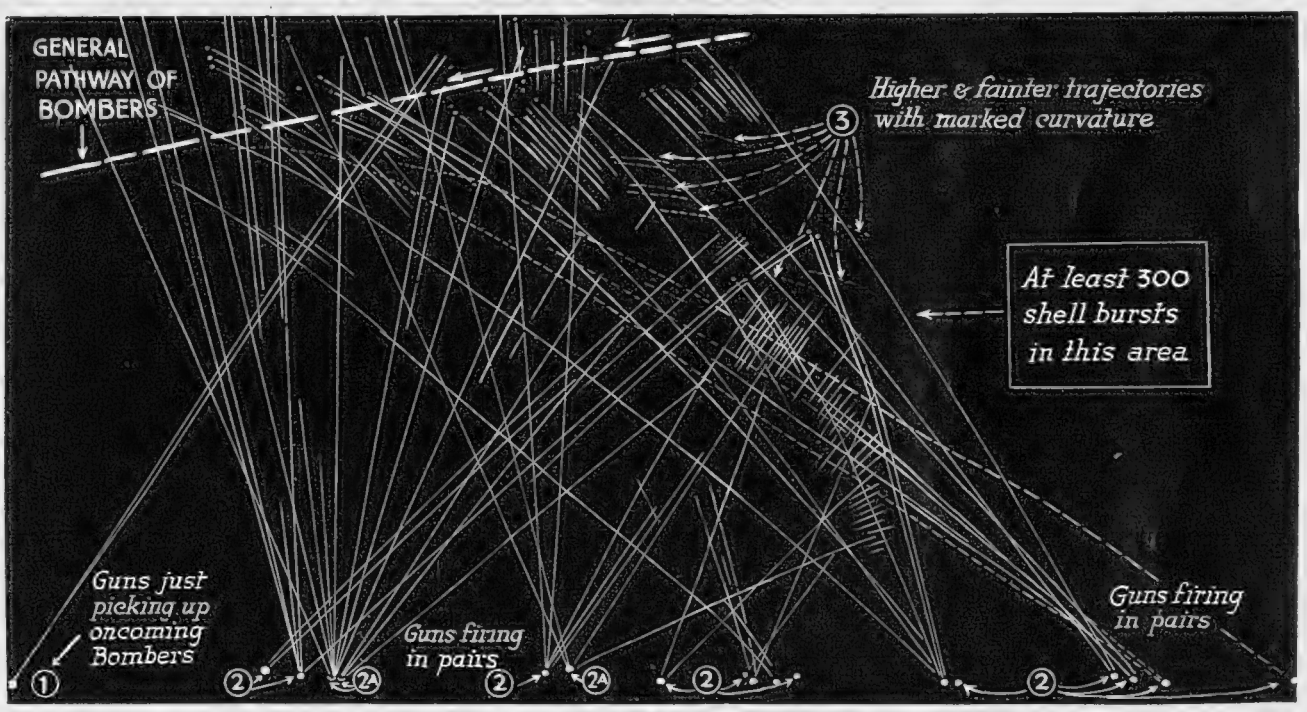
Tracers are normally used in such large proportions only at close

(Continued above on right)

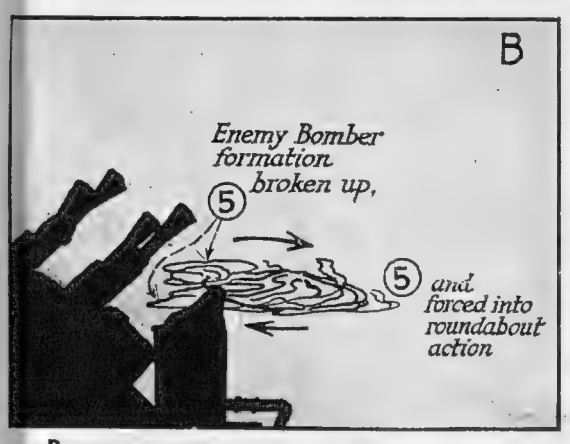
range, though possibly anything available was flung up in the stress of evacuation. But the shells are certainly bursting at moderate heights: the amount of curvature in the approach trajectories, as 7.7., suggests around 8,000 to 6,000 ft., the much straighter (and thus shorter) near ones, as 8.8., down to no more than 2,000 or so. Most of the shells are in sets, as 9.9., and the guns are almost all the ubiquitous Bofors, which takes clips of projectiles.

Smoke from earlier, nearer bursts is at 10, drifting across from right to left in a rather brisk wind. A large, dull glow from fires, or fire-bombs, is seen behind the lighthouse, 11. Smaller ones are at 12.12. There is a low cloud-drift at 13, used as cover by the approaching bombers. It is dense because the searchlights do not show anywhere above it. The searchlights—as 14. 14.—are using circular inverted cone sweeps to cover the cloud ceiling and detect any machine which may dive through. It is quite low stratus, 2,000 ft. at the most. The glowing dots 15. 15. are the gun flashes.

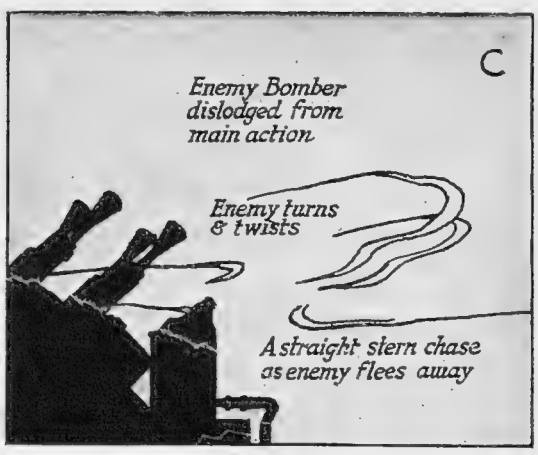
In the drawing reproduced below the photograph is simplified to show where the shots are coming from: (1) First shots of a gun just picking up oncoming bomber, firing from left of camera. (2) Guns in action—there are pairs at (2A). They are disposed about what appears to be a harbour with funnels of steamers. The centre guns are at the far side; there are at least 300 shell-bursts over this area in the brief interval of exposure. The bombers are coming in higher at the right background, starting across from this viewpoint to go out low in the left fore-air, the guns traversing with them. At (3) are additional trajectories which, however, are too confused behind the others for their guns to be traced. They are higher and further, as their more marked curvature shows.



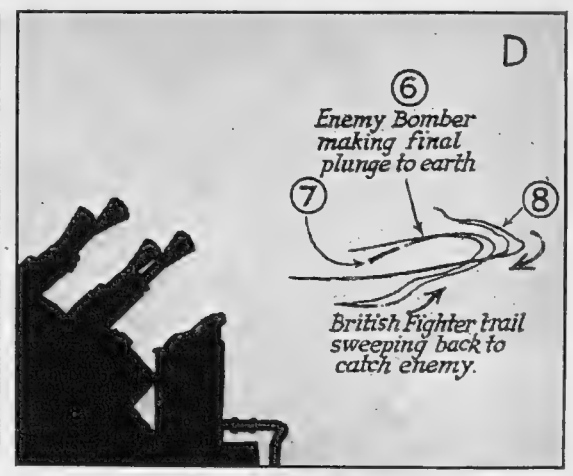
THIS DRAWING IS AN ANALYSIS OF THE PHOTOGRAPH FROM CRETE REPRODUCED ABOVE—To it the general pathway of the enemy bombers has also been inserted. *(See also notes on left and above)*



B—The enemy bomber formation is broken up



C—An enemy bomber is detached from the action



D—The destruction of the bomber

have broken up the bombers' formation; and the subsequent breaking-off action driving them from the convoy has developed into the usual roundabout now taking place well inside the English coastline, discernible in the photograph. (The convoy would not be so near to France.)

But it is a busily disorderly roundabout, with a considerable dog-fighting element, as the short-circuiting trails across its middle show, and also the eddies surging beyond its main perimeter, as at (5) (5), where bombers have been temporarily forced out, only to succeed in again rejoining their inhospitably shepherded fellows.

C shows the five observable examples of bombers which have been dislodged from the main body, and have no option but to attempt to escape with a fighter hard upon their tails. They turn and twist at first, but the fighters' superior speed soon straightens them into a stern chase. Most of these are making for the left, roughly parallel to the coast, so that one might venture the deduction that this is occurring somewhere near Deal. **D** shows two specially interesting incidents. At (6) one of these chase trails has split, and the bomber has begun his final shot-down plunge to earth at (7). As a point of finesse, it is interesting to note how the faster fighter's trail has already outrun his enemy's. (8) shows a fighter, almost certainly returning from a kill, sweeping back to the perimeter of the roundabout to pick off any disgorged straggler.

THE MODERN BRITISH SUBMARINE CAN FIGHT ON THE SURFACE: Here a seagoing submarine of the Sealion class is overhauling a merchantman and firing a warning shot as a signal to stop. (The Sealion class submarines have particularly distinguished themselves in this war)—*Drawing by Wm. McDowell*

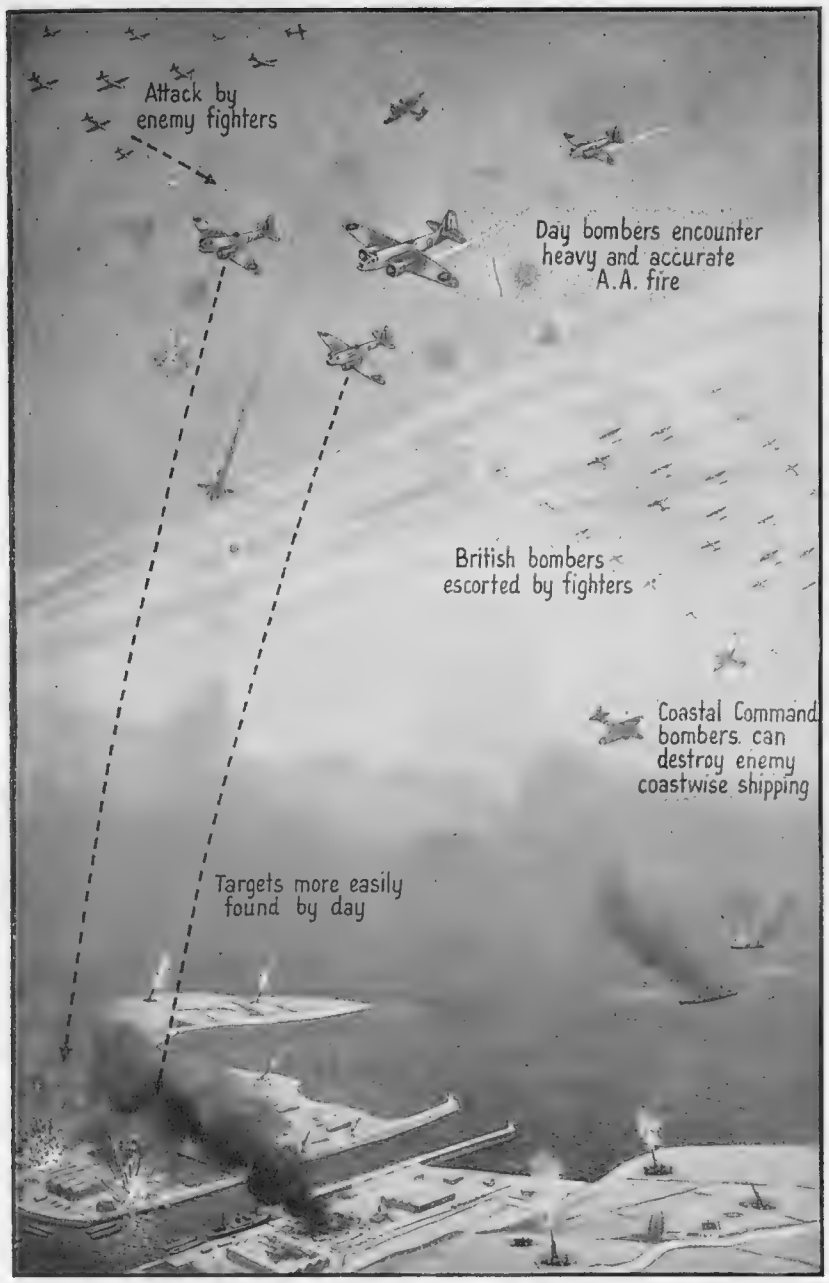
SURFACE ATTACK by SUBMARINES

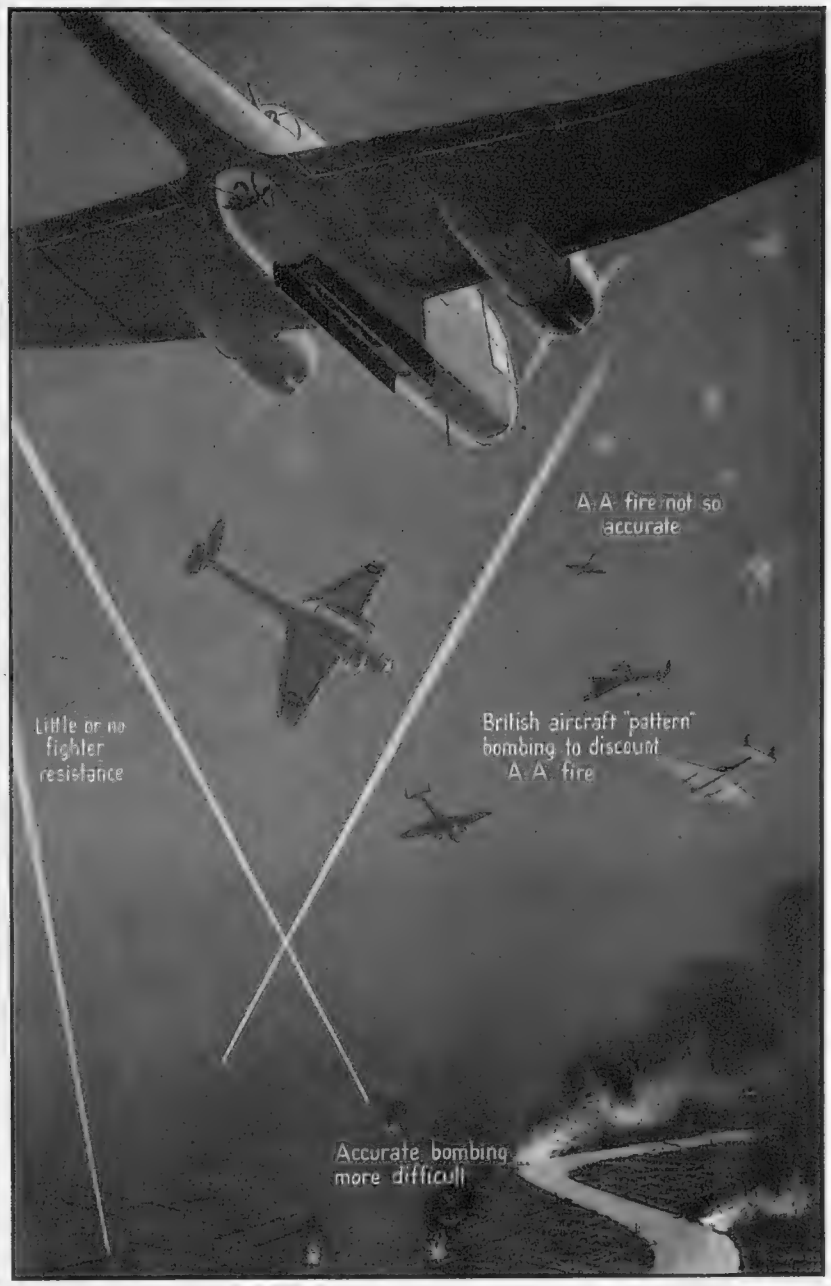
The general public impression is that the modern submarine exists solely for under-water attack: this is quite wrong. The latest types of British submarine—as evidenced by vessels of, say, the Severn class—can attain a surface speed of 22 knots, as against a submerged speed of less than half. The *Severn* and her sister, *Clyde*, were, in point of fact, the first Diesel-driven submarines to exceed 21 knots. This is, of course, far in excess of the speed of the average cargo vessel—or even the smaller of the enemy's warships.

The speed, together with the 4-in. gun carried on her conning-tower structure (or, in the case of earlier types, on the deck), makes the submarine a formidable surface-attack craft: in addition, she has the ability to submerge very quickly, if the need should arise, and make use of her torpedo-tubes. These capabilities were well demonstrated recently in the Mediterranean: an Italian armed trawler, escorting two schooners, was sighted by one of our submarines. The enemy convoy was promptly chased by the British vessel *on the surface*, and all three enemy vessels were sunk by gunfire. Another of our submarines at the same time torpedoed (from the submerged position) and almost certainly sank a large tanker of about 8,000 tons; another reached port only after having sustained serious damage from a British submarine.

A very important advantage possessed by the submarine is her ability to keep the sea in weather so bad as to drive destroyers, and even cruisers, to shelter. Because of her size and the fact that the greater part of her hull is below the surface, she is an exceedingly safe and stable vessel in the worst of weather, though possibly uncomfortable for the crew, who have to remain below!

A BRITISH SUBMARINE DESTROYS AN ITALIAN CONVOY ON THE SURFACE: An incident from the Eastern Mediterranean when three Italian vessels were sunk by gunfire from a modern British submarine of the newest type—*Drawing by Wm. McDowell*





THE DIFFERENT CONDITIONS OF DAY AND NIGHT BOMBING AND HOW THEY AFFECT THE BOMBERS—*Drawings by L. Ashwell Wood*

The whole situation of the air war in the western area of conflict is changing. The daylight air offensives now being undertaken by the R.A.F. are the most significant since the decisive victory scored by British pilots over the German *Luftwaffe* in the Battle of Britain in the autumn of last year—and are the direct outcome of the *Luftwaffe*'s failure to penetrate our defences. Last summer and autumn, it will be remembered, the enemy were coming over this country in droves, with the avowed intention of carrying out daylight bombing attacks on production centres and carrying out precision bombing on docks, factories, aerodromes, camps and other objectives. It was not until the superiority of the R.A.F. was established by day that the Germans abandoned their avowed principles and undertook haphazard bombing by night. With the roles now reversed, British bombers are daily invading the enemy's territory, escorted by fighter formations, and are creating havoc on the enemy's factories, aerodromes, production and distribution centres; their successes have been remarkable. By day, targets can be seen more clearly, and greater damage wrought, so long as our fighters can guarantee immunity from attack to the bombers. This they have done admirably, so far. There is, of course, heavier and more accurate anti-aircraft fire to contend with, but, again, our losses from this cause have not been excessive. It is somewhat ironic that the very methods first propounded by the enemy are now being used against him, whilst he seems powerless—in view of R.A.F. superiority in the daylight air—to do other than pursue a system of night bombing which he has always professed to scorn

THE DAYLIGHT OFFENSIVE OVER FRANCE

The Growing Strength of the R.A.F. and the Superiority of British Fighters are now Making Possible the Daylight Bombing of Important Areas of Occupied France and of Coastwise Enemy Shipping

OUT from the coast of England a small formation of Blenheim bombers sweeps high towards the coast of France. Around the Blenheims cluster a cloud of fighters—Hurricanes close in guarding the formation from close attack, Spitfires sweeping farther out, ahead and to each side.

In the nose of each Blenheim a bomb-aimer sits crouched at his table, waiting for the moment to come for the release of his bombs. In front of him are an air-speed indicator, a height indicator and clock inscribed with a 24-hour dial. Down to the left is the bomb-sight. Behind him the pilot grins cheerfully as they cross the coast, the formation strung out to each side, the Hurricanes seeming to swim lazily in and out.

The bomb-aimer in the Blenheim looks downwards through the nose window of his craft. The line dividing the panels in the nose ploughs purposely forward as though lining a furrow straight for the objectives. A slight bump as the bomber surges over the coast and then the purposeful path continues across the cliffs, the sand dunes, on over broad fields, across deserted roads, on over woods and streams.

Suddenly there is a brief shadow across the nose and an object flashes by, tumbling over as it goes. The bomb-aimer glances down and sees a smoking trail from whirling wings and tail. He catches a glimpse of a black cross on one tip, a flash of yellow at the nose—a Messerschmitt fighter.

He peers up. There high above, almost in the sun, there is a glint of pale blue wings turning and diving. The Spitfires high above are breaking up a small formation of Hun fighters.

By now the target is in view—the brown mass of a railway junction with dozens of tracks criss-crossing and converging. The Blenheim is running up to the target. All the precision made possible by daylight bombing without interruption from the enemy presents the bomb-aimer's dream. The target is dead in the sights, the bombs are away. As the formation wheels and turns, twenty billowing mushrooms of smoke show where the bombs have struck—their accuracy ensured by the fine work of the escort fighters.

And so the formation flies serenely back—the Hurricanes still closely packed in with them until, over Kent, they break away and, with a wave, turn off to their individual stations—a job well done.

These offensive sweeps grow daily in power and in effect as our mounting striking force is brought more intensely home to the Nazi invaders in France. Slowly our air offensive is being extended, slowly British air power is reaching out and spreading its air supremacy beyond Great Britain by day as well as by night. Night bombing is still the first string of our attack—and will remain so. But its effect will be multiplied very greatly when a continuous day offensive becomes possible as well. At present we are only on the brink, but with American aid and the prodigious efforts of our own factories and training establishments, our power is mounting fast.

In this development the day bomber and the night bomber are moving farther apart—perhaps to be brought more closely together again should night interception improve in the future. The present trend is for the night bomber to grow in size and in the weight of the bombs it can carry. The Stirling, the Halifax, the Manchester, the Boeing Fortress, the Liberator are all examples of this trend—heavy bombers with many thousand horse-power each, capable of lifting several tons of bombs for long ranges and defended by powerful turret-armament. The purpose of the night bomber is to deliver smashing blows on carefully-selected targets, flying singly but in a constant stream.

The purpose of the day bomber is different. Where the night bomber is like a cudgel, the day bomber is like a rapier, precise and exact in its aims, swift and active in its attack. The trend of the day bomber is towards the small, lightly-armed machine carrying a moderate weight of bombs, depending on its fighter and its own speed for its defence.

At present the Bristol Blenheim IVF is the chief type of bomber used on our daylight excursions over France. Newer and much faster types will follow—among them such types as the Douglas Boston and the Martin Baltimore. Some of these aeroplanes will have the speed to dispense with fighter escorts.

Naturally, the enemy is not asleep to the possibilities of this form of attack. As yet no German day bomber has appeared capable of dispensing with escorts with any hope of success. The fighters with bombs have not the striking power to do real damage. Thus Germany's rigid production methods may have robbed her of a technical development in the near future which will be of immense importance.

There is one other aspect of daylight offensives which has been exploited by the R.A.F. with much success recently. That is the work by the Coastal Command, whose Beauforts have torpedoed enemy shipping from the Channel ports to Kiel. The Beauforts have both the speed and the range necessary for surprise attacks of the sort which makes success far more certain, and they have inflicted damage on German coastal traffic.

Thus, as the war develops, so the bomber squadrons engaged in daylight work will differ more and more from the night-raiding squadrons. Both are complementary, both an essential link in that chain of air operations over Germany that will destroy the Nazi power from inside its own domain.

THE R.A.F. ATTACKS ENEMY SHIPPING ALONG THE OCCUPIED COASTS: It has been stated that during recent months the enemy has been forced to make greater and greater use of coastwise shipping for the passage of necessary supplies from Germany to Northern France. However true this may be, it is certain that the R.A.F. has daily been scoring surprising victories over German coastwise shipping within the area marked above

THE R.A.F. SWEEP THE AIR ABOVE NORTHERN FRANCE and defeat the new Messerschmitt 109F, Germany's "sub-stratosphere" fighter-aircraft—*Drawing by Roland Davies*

The new 109F's (a full description of which is given in pictorial form on the following page) have already been encountered by our Hurricanes and Spitfires in recent air battles over the Channel and Occupied France—and have proved as great a failure against our fighters as was the older type of Messerschmitt. One reason is that our fighters, too, have undergone great improvements, although they are still called by their old names! During our heavy offensive by daylight over enemy territory, Spitfires have, on many occasions, served as fighter-escorts for the bombers. And the results have been such as those depicted by Mr. Davies in his drawing above. Away on the left, the force of British bombers are seen at their appointed tasks, bombing positions along the coast. The new Messerschmitt 109F's have been put up into the air to shoot the bombers down or [illegible] them off, but great as is the operational height of the new German aircraft, that of the Spit[illegible] is as great, if not greater. The result is a dog-fight, in which the superior armament and gre[illegible] manœuvrability of the British aircraft is once again demonstrated. Despite the increase in performance of our new Hurricanes and Spitfires, their armament and fire-power have not [illegible] diminished: those of the 109F's are, however, considerably less. With the inevitable result that [illegible] now reported that the new German fighters are no longer engaging our pilots with their fo[illegible] vim during these present heavy bombing raids by daylight on Northern France

A BRISTOL BEAUFORT OF THE COASTAL COMMAND ATTACKING ENEMY SUPPLY SHIPS OFF THE FRENCH COAST—*Drawing by Roland Davies*

The Beauforts carry bombs, they can act as reconnaissance aircraft, or as fighters; but, above all, they are built to carry torpedoes. With these latter they have been playing havoc amongst the enemy's supply ships off the German, Dutch and French coasts. All branches of the R.A.F. have joined in the game—Coastal, Bomber and Fighter Commands—but it is the Beauforts which have the capacity to sink a fairly large vessel with one shot! Within two weeks, no fewer than 23 attacks were carried out on enemy shipping within these confined waters

The GERMAN DEVELOPMENT of HIGH-FLYING TECHNIQUE

LONDON has rarely heard the daylight warning siren since October 1940. The Battle of Britain in 1940 had been won by the last days of October and from then on the enemy abandoned his attempts at daylight raiding and concentrated instead on his night attacks.

The last stage of that day assault was made with fighters converted to carry bombs and attempting to sneak in to make indiscriminate attacks, relying on their speed to avoid interception.

Since then the day alerts in London have been rare and usually occasioned only by high-flying reconnaissance aeroplanes endeavouring to photograph the results of the raids of previous nights. No big formations of bombers have tried to penetrate the defensive ring set up by the Fighter Command.

In this they have learned wisdom, for the Fighter Command is now far stronger than it was when it decisively defeated the *Luftwaffe* in the autumn days of 1940. Not only are the numbers much greater, but the Spitfires and Hurricanes of this early summer are far more formidable than those of only six months ago. Equipped with motors which turn out more horse-power at a greater height, their speed and climbing power are notably advanced. Even more important, their armament has been increased and now includes shell-firing cannon of a type superior to any possessed by the enemy.

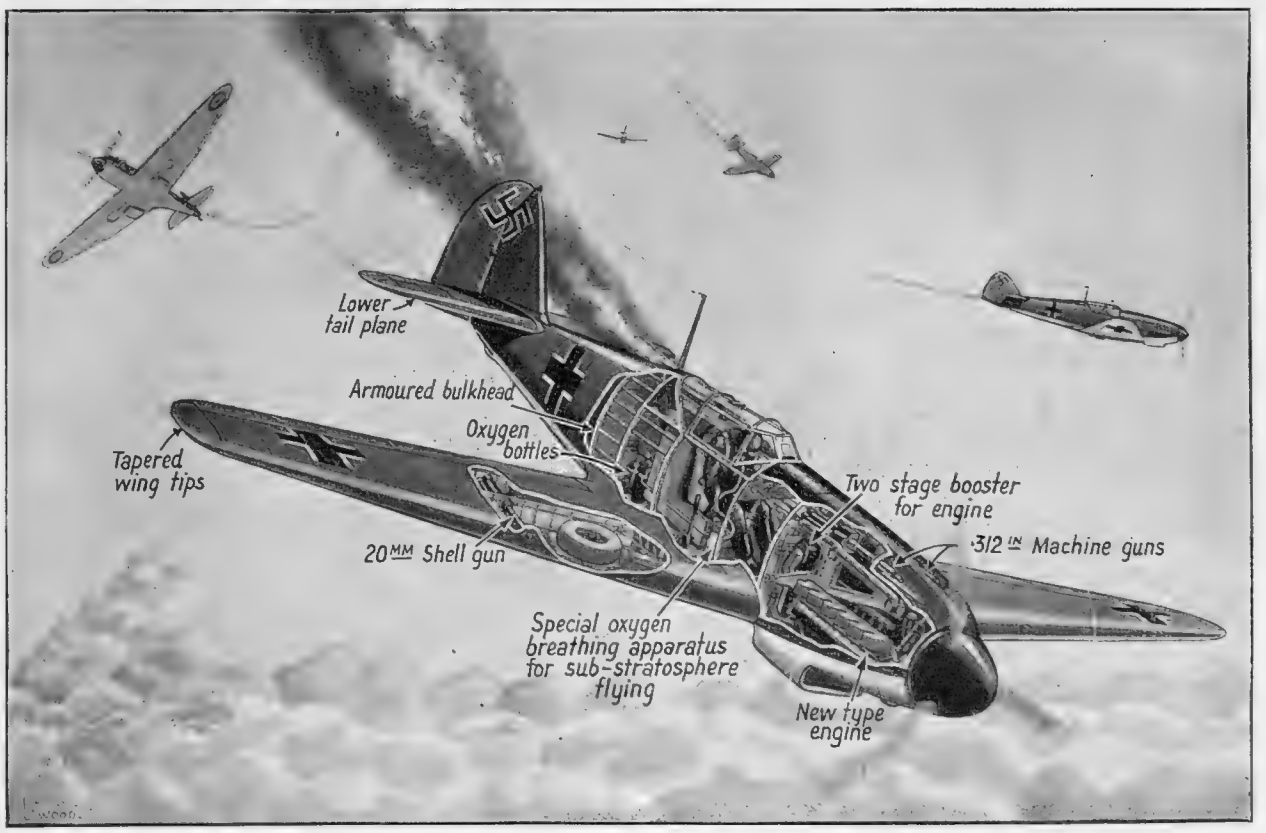
Yet the Germans have not been idle and may yet try a resumption of daylight tactics. German development appears to have been devoted chiefly towards the improvement of the high-flying qualities of the machines. To that end, new exhaust-driven turbo-superchargers have been developed to give the engines more power at height; in some instances wing area has been increased so that the loading is lighter, and even armament has been reduced to lighten the weight and so improve the flying qualities.

An example of this policy is the Messerschmitt Me 109F, which is reported to be agile in a fight at more than 35,000 ft. Possibly the enemy has been trying out this newly modified fighter recently in an effort to compare its paces with those of our newer machines. If so, the results have been disappointing for the enemy.

If used as a bomber, the damage done might not be great, but sporadic bombing by day would be disturbing and might disorganise business to some extent. It would be anti-morale bombing rather than with any strictly military objectives in view.

The reply to threats of this sort is increased concentration on the high-flying qualities of our own fighters. More powerful superchargers is the basic need, although development must go forward at the same time in such essential components as airscrews to absorb the increased power at great heights, in oxygen apparatus for the pilots and in the design of details to resist long exposure and intense cold without failure. Guns must be kept warm, windscreens must be de-iced, cockpits must be heated. Such problems are not easy when production is the great need.

The Battle of Britain of 1941 is certain to follow that of a year ago. In precisely what form it will declare itself we have yet to see. But more combats at greater heights as well as low-level attacks on aerodromes seem to be certainties.



GERMANY'S NEWEST FIGHTER, the Messerschmitt 109F, designed to fly at "sub-stratosphere" heights—*Drawing by L. Ashwell Wood*

To counter our new Hurricanes and Spitfires, Professor Messerschmitt has evolved the aircraft analysed above—the 109F, a development of the already well-known 109, which was to have brought about the downfall of the R.A.F. As a measure of its capabilities, it may be stated that our own aircraft have already shot down a number of these 109F's! The new German fighter is much modified—it is equipped specially for operation at a great height: a speed of 380 m.p.h. at 21,000 ft. has been given, with a service ceiling of 38,000 ft. The wing-span has been increased by tapered wing tips, giving better manœuvrability at great heights, and a better rate of climb. There are one cannon-gun and two ·303 machine-guns—a lighter armament than hitherto, indicating the importance placed by the designer on manœuvrability and height. The 109F carries stronger protection in armour-plating, and is also specially equipped with oxygen apparatus for sub-stratosphere flight

MEN and MORE MEN for the R.A.F.

Thousands are Entering for Service with the British Flying Services

BRITISH FLYING CADETS NOW IN TRAINING IN THE UNITED STATES : Taken at the U.S. Civilian Aviation School in Tuscaloosa, Alabama, these British flying cadets are being fitted out with American-made caps prior to embarking on a period of training for the R.A.F. under the new scheme just inaugurated in the States. The cadets will all be given courses which will fit them for service with our Squadrons in Britain. This picture has just arrived in this country by Clipper mail across the Atlantic

THE R.A.F. IS GROWING BY LEAPS AND BOUNDS : This picture was taken at a station where thousands upon thousands of men are being trained as mechanics, riggers and fitters. The trainees are marching from their hutments to the workshops, with their working overalls tucked under their arms

THE R.A.F. UNDERTAKE THE UNIVERSITY EDUCATION OF YOUNG STUDENTS WHO WILL LATER BE ELIGIBLE FOR COMMISSIONS

The first of the series of University courses has now begun in connection with the Air Ministry's Pre-Entry Training Scheme, specially arranged for University students eligible for commissioned ranks who wish to serve as pilots and observers in the R.A.F. The young men, who join the University Air Squadron, are given a course of ground instruction similar to that given at the Initial Training Wings of the R.A.F., and a course of study in more general subjects, including mathematics, mechanics and physics. Those members who have been chosen by R.A.F. Selection Boards are on "Deferred Service," wearing uniform when with the University Air Squadron and with their expenses paid by the Air Ministry. Their course includes actual flying training. This picture was taken at the end of one period of instruction, and shows some of the young men—future pilots and observers—leaving college for their quarters

Drawing by Montague Dawson

STILL THE TARGET FOR ENEMY BOMBERS : H.M.S. "Ark Royal" frustrates still another attack by four big black bombers in the Western Mediterranean

On this occasion, true to the *Ark Royal's* record, the Italian wireless stated that the aircraft-carrier had been struck by three torpedoes, although no one on board was aware of it! The *Ark Royal* was very heavily attacked—on four occasions in the one day; a despatch from a correspondent on board described the scene depicted by Mr. Dawson above in the following words: "Fighters roared down, landed (on the aircraft-carrier's deck), were rushed below in lifts, and, after being refuelled and provided with more ammunition, streaked off again. . . . Presently a mighty chorus of guns thudded, and we then saw four big black bombers in the misty lower edge of the clouds. They were about 4,000 ft. up. A destroyer on the far starboard vanished behind a wall of water as a stick of bombs crashed around her. Yet they were met with a curtain of flying steel. One machine wobbled and banked sharply into the cover of the clouds. Others followed into the incessant murderous fire, but passed well ahead of us and jettisoned their bombs into the sea, then tore away pursued by a fighter"

THE AIRCRAFT-CARRIER'S ROLE IN THE WAR

The Newest Type of Naval Vessel has Triumphantly Vindicated Itself in the Present Conflict

By F. BOWEN

BEFORE the outbreak of the present war, there were quite a number of authorities who advocated the abolition of the aircraft-carrier as being the most expensive naval type, untried in war, and terribly vulnerable to all forms of attack, especially from the air.

The loss of the *Courageous* and *Glorious* seemed to confirm this view and revive the agitation. The Admiralty said nothing, for the Navy fully realised that these two ships were designed over twenty years previously for quite another purpose. Their conversion, costly as it was, was justified by the practical experience which they afforded, but their day was done. The new series of ships, which started with the *Ark Royal*, completed in November 1938, were quite a different proposition.

The *Ark Royal* was not the first specially-designed aircraft-carrier, as has so often been stated; that distinction goes to the *Hermes*. The *Ark Royal's* displacement is 22,000, recognised as about the minimum consistent with the efficient discharge of her functions in the British Navy and the improvements on her design; the *Illustrious*, *Formidable* and others are 23,000.

To outward appearance, these ships are not unlike the *Courageous* and *Glorious*, with their funnel and navigating superstructures, carefully streamlined, right over on the starboard side of the ship in order not to impede the aircraft using the flight deck; but internally they are entirely different, mostly in factors on which the enemy would dearly like to obtain information.

In the *Ark Royal* the hull itself is 721 ft. 6 ins. long on the waterline, but the flight deck is 800 ft. by 95 ft., and is almost a parallelogram, extending wide over the bow and stern in a manner which is very liable to catch the wind and to make the ship difficult to handle with the accuracy demanded by flying work.

This huge flight deck naturally makes a very tempting target to the air bomber, the more so as it is inevitably weakened by the holes cut for the lifts which bring the planes up from the hangars below.

The most effective armament is one of the greatest problems in designing these ships. The present standard armament is the 4·5-in. dual-purpose gun, a magnificent weapon which fires a useful shell and which can be trained and elevated nearly as quickly and easily as a machine-gun. In order to keep the flight deck clear it is impossible to mount these guns in turrets like a cruiser, with an arc of training up to 300 deg., and they are carried in sponsons, or little semi-circular balconies, projecting out of the side of the ship just below the flight deck. Against the attack of destroyers or other surface craft they can only bear on the broadside on which they are mounted.

The *Ark Royal* and the later ships carry sixteen of these guns mounted in pairs behind light steel shields, which are sufficient to keep off machine-gun bullets. Right over on the starboard side, in way of the navigating superstructure, are four multiple pom-poms, and in sponsons over the side in the bow and stern there are eight multiple-barrelled heavy machine-guns for dealing with dive-bombers.

DURING THE TERRIFIC SEVEN-HOUR ATTACK ON THE AIRCRAFT-CARRIER "ILLUSTRIOUS" ON JANUARY 10 : This official Admiralty picture has only recently been released : it was taken on the occasion when *Illustrious* was subjected to six attacks in seven hours by 100 enemy planes, whilst sailing with the Battle Fleet in the Mediterranean. As a result of the damage she sustained, the aircraft-carrier turned and headed for Malta, escorted by destroyers, and, later, repairs were effected. During the seven attacks, *Illustrious* and her aircraft brought down nine of the German attackers, a further seven were damaged, of which at least two were almost certainly destroyed. Later, H.M.S. *Illustrious* was successfully repaired in harbour. This picture shows the splash of a near miss during the attacks, but the man at his action station on board the aircraft-carrier does not even duck. The burst of anti-aircraft shells can be seen just over the top of the splash

The protection given to the *Ark Royal* and her successors is confidential. A patch of vertical side armour covering the engines, boilers and magazines shows in photographs, where the light catches the edges of the plates, but this is nothing more than the usual practice in all navies. It is known that they have minute subdivision, with internal bulges against torpedo explosions, but the greatest secret of all is the amount of armour on their decks, which is vaguely described as "heavy." It is certainly far too heavy for the taste of the German and Italian flyers who attacked H.M.S. *Illustrious*.

That occurred on January 10, although full details have only recently been released. She was working through the Central Mediterranean with the Battle Fleet and other units, and was first attacked by two torpedo bombers, which she avoided without difficulty by the use of her helm and her high-angle guns. Her own fighter aircraft immediately chased them back to the protection of their shore defences, but before long she was attacked by about forty German Junkers dive-bombers which came on in waves. They neglected the other ships in the fleet almost entirely and concentrated on the *Illustrious*.

According to Axis ethics, her scuttling would have been fully justified, but the *Illustrious* fought on, assisted by as many other ships in the squadron as could contrive it, and made steady progress against the fires. The water that was pumped on to them gave the ship a considerable list which made it difficult to work her planes, but she continued her way towards Malta with a destroyer escort.

She entered Malta after seven hours of continuous bombing and was there subjected to many further attacks. The last two were particularly fierce, carried out by about fifty bombers each, but although she was then a sitting target they only scored one hit. Very soon afterwards she was at sea again, steaming at a very high speed towards permanent repairs.

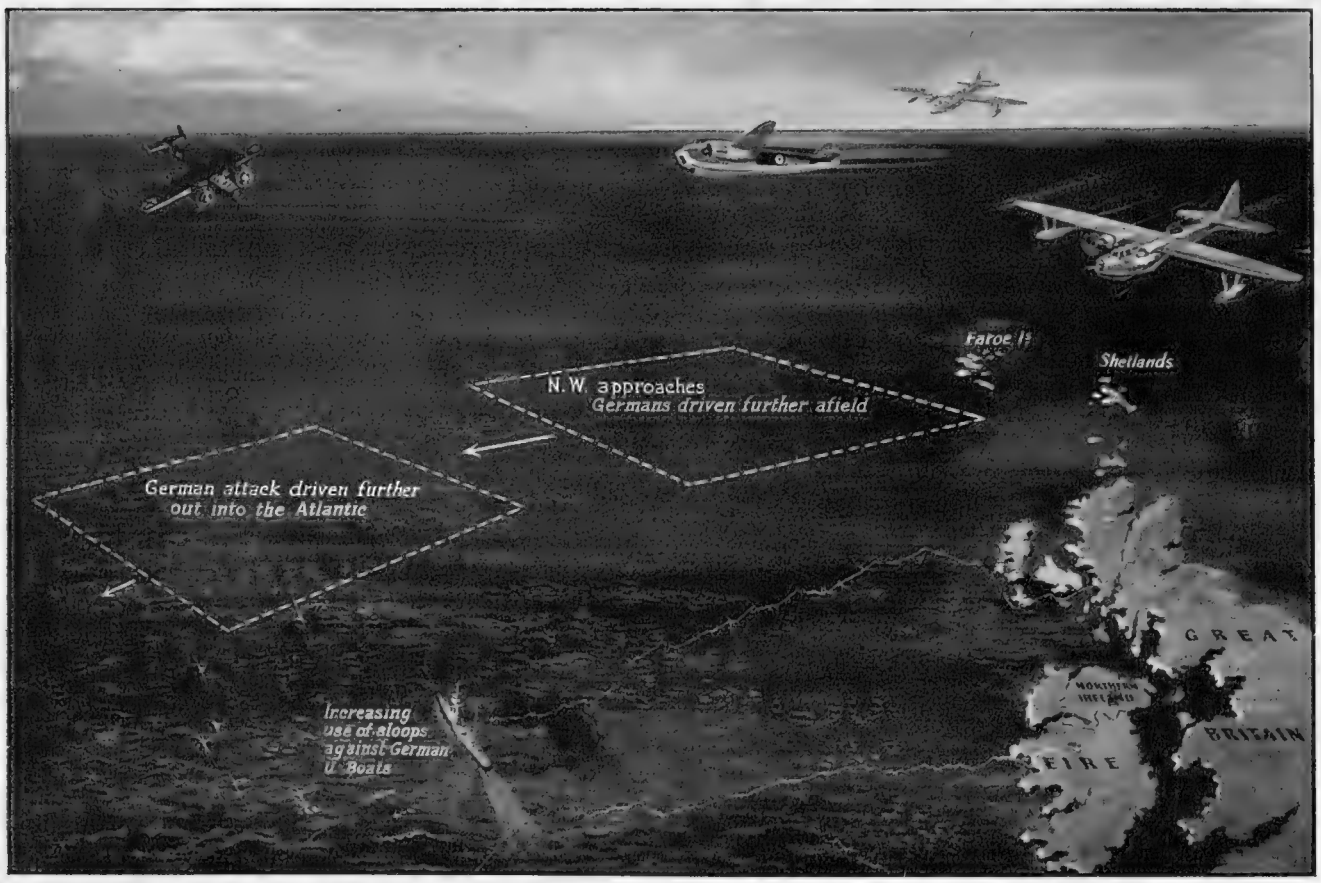
This particularly gallant action and others whose details have passed almost unnoticed have entirely changed the Service view with regard to the utility and powers of resistance of the modern aircraft-carrier. She can, of course, be sunk like any other vessel, and if she is she takes between three and four million pounds down to the bottom with her, but her destruction is not nearly as easy as had been supposed, while Taranto and other incidents have shown her value in offensive operations.

FACTORS IN THE NEVER-CEASING BATTLE OF THE ATLANTIC

BRITISH SUNDERLAND FLYING-BOAT VERSUS GERMAN FLOAT-PLANE IN COMBAT OVER THE ATLANTIC WATERS: An incident during one of the never-ceasing patrols of the R.A.F. Coastal Command in protection of British shipping—*Drawing by Roland Davies*

THE drawing above represents an incident which was the basis of a recent Air Ministry bulletin in connection with the Battle of the Atlantic. An Australian-manned Sunderland flying-boat of Coastal Command encountered two German float-planes: immediately the pilot of the Sunderland went low down over the water when the enemy were sighted some miles off; in this position it was, of course, safeguarded from attack from below. One of the Germans attacked with cannon from a range of half a mile; but the Sunderland gunners held their fire until the range was reduced. Then they scored many hits: the German broke away: he was seen to make two attempts to land on the water; but finally crashed into the sea. The second enemy float-plane flew over the spot and made off at top speed. The Sunderland, which suffered no damage, circled for a time, but no survivors or wreckage came to the surface. This huge flying-boat simply bristles with offensive armament; and many times in this war it has scored successes over the enemy, although its principal function is not that of fighting.

In the Battle of the Atlantic, our offensive against Hitler's U-boats (and aircraft, too) continues. Mr. Churchill pointed out recently that "in January Hitler mentioned March as being the peak effort of his attack on the sea, and we were in expectation of attacks on a scale never dreamed of. . . . March, April and May have gone . . . the month of May was the best month we have had for some time. . ." It would seem, in fact—as indicated in the diagram reproduced on the left—that the battle is now moving to the westwards, farther out in the Atlantic. This is, no doubt, due to our increased strength in anti-U-boat convoy escorts: the effect of this increased strength has been to make attacks on convoys in the nearer Western Approaches to these islands so dangerous that the raiders are being driven to more distant areas. Attacks farther afield are, of course, less intense; the submarines have farther to go to reach their hunting-ground, thus their period of active operation against British shipping is correspondingly reduced. Serious as the position still remains there can be little doubt of our eventual triumph over the sea-raider.



UNDER PRESSURE FROM BRITISH PATROLS IN THE ATLANTIC—both on the surface and in the air—the German raids on our shipping are being pushed farther and farther back, so that the Battle of the Atlantic is now moving westwards

ANOTHER HUGE AMERICAN CAPITAL SHIP IS LAUNCHED WELL AHEAD OF SCHEDULE : The new 35,000-ton battleship "Washington," at the Philadelphia Navy Yard, just after her recent launching, which was eighteen months sooner than was expected—*Drawing by Montague Dawson*

In an issue of *The Sphere* published on May 3 it was recorded that the new 35,000-ton U.S.S. *North Carolina* had been commissioned a good six months ahead of her scheduled time. Now comes the additional news of the launching of her sister ship, the battleship *Washington*, eighteen months ahead of schedule. *Washington* was laid down in June, 1938, for completion by October, 1942 : she is one of the six vessels of the Washington class, all of which are to be armed with nine 16-in. guns, and to carry four aircraft and two catapults

THE "ROBIN MOOR" WAS TORPEDOED, and the subsequent voyage of passengers and crew in an open boat : On May 21, the American freighter *Robin Moor*, of 1,887 tons, was stopped by a German submarine in the Atlantic, midway between the African and South American coasts. The passengers and crew took to their lifeboats, and the vessel was then torpedoed, and thirty-three shells were fired at her. She sank in seventeen minutes. Of the total number aboard, eleven survivors were landed in Brazil ; the other thirty-five were given up as lost. Fortunately, however, some days later a British vessel landed the remainder, having picked them up in the South Atlantic after the seven passengers and twenty-eight crew had spent thirteen days in open boats. One child was included in this party. The sinking of the American vessel has caused the bitterest resentment throughout the United States

AFTER THE SINKING OF THE AMERICAN SHIP "ROBIN MOOR" : The passengers and crew take to the boats and spend thirteen days at sea before being picked up in mid-South Atlantic by a British vessel—*Drawing by W. G. Whitaker*

"A NAZI WARSHIP RESCUES SURVIVORS" : A picture taken after the sinking of a British merchant vessel in the Atlantic, issued by the Germans apparently for propaganda purposes

On right—

A GERMAN SUPPLY SHIP INTERCEPTED IN THE ATLANTIC : The German s.s. *Babitonga* is a vessel of 4,422 tons. According to a recent Admiralty communiqué, she has just been intercepted by a British patrol in the Atlantic, as she was making her way to the German occupied port of Brest, in France, carrying a cargo of Diesel oil. The *Babitonga* had been taking refuge in Brazilian waters since the outbreak of war. She sailed from Santos on April 24, having cleared for the Russian port of Vladivostok. Two months later she was intercepted

OIL

What It Is, and How It Is Refined into the Fine High-performance Spirit

By A. BEEBY THOMPSON

AN OIL STATION IN THE SYRIAN DESERT: This is known as H.5: it is one of the Iraq Petroleum Company's posts along the Syrian pipe-line. The many roof-gutters seen here are intended to catch rainwater, whilst the armour-plated tank provides the settlement with its drinking water

A MODERN TOWN OF STEEL AND STONE: Another view of Station H.5. There are twelve British engineers here to carry out work on pumps and pipe-line; the station is fenced and guarded against attack by bandits and other disturbers of the desert peace

TO the ordinary man, a great deal of mystery surrounds the processes that intervene before crude oil as it emerges from the earth can be used for light, fuel, lubricants and other purposes in industry. No one unacquainted with petroleum could be expected to appreciate the intricate problems needing solution before any particular crude oil could be transformed into innumerable merchantable products.

Natural petroleum (earth oil, as the name implies) is a highly complicated mixture of liquid hydro-carbons with a wide range of boiling-points; and it occurs, like water, in the interstices of rocks, but is saturated with gases and mixed with impurities needing removal before transportation. When struck at depth by a bore-hole, oils generally contain sufficient gas in solution to cause their natural flow in just the same way as the contents of a bottle of aerated water effervesces and bubbles over when the stopper is removed. Only after the escape of much of the gas is it necessary to introduce artificial methods of extraction.

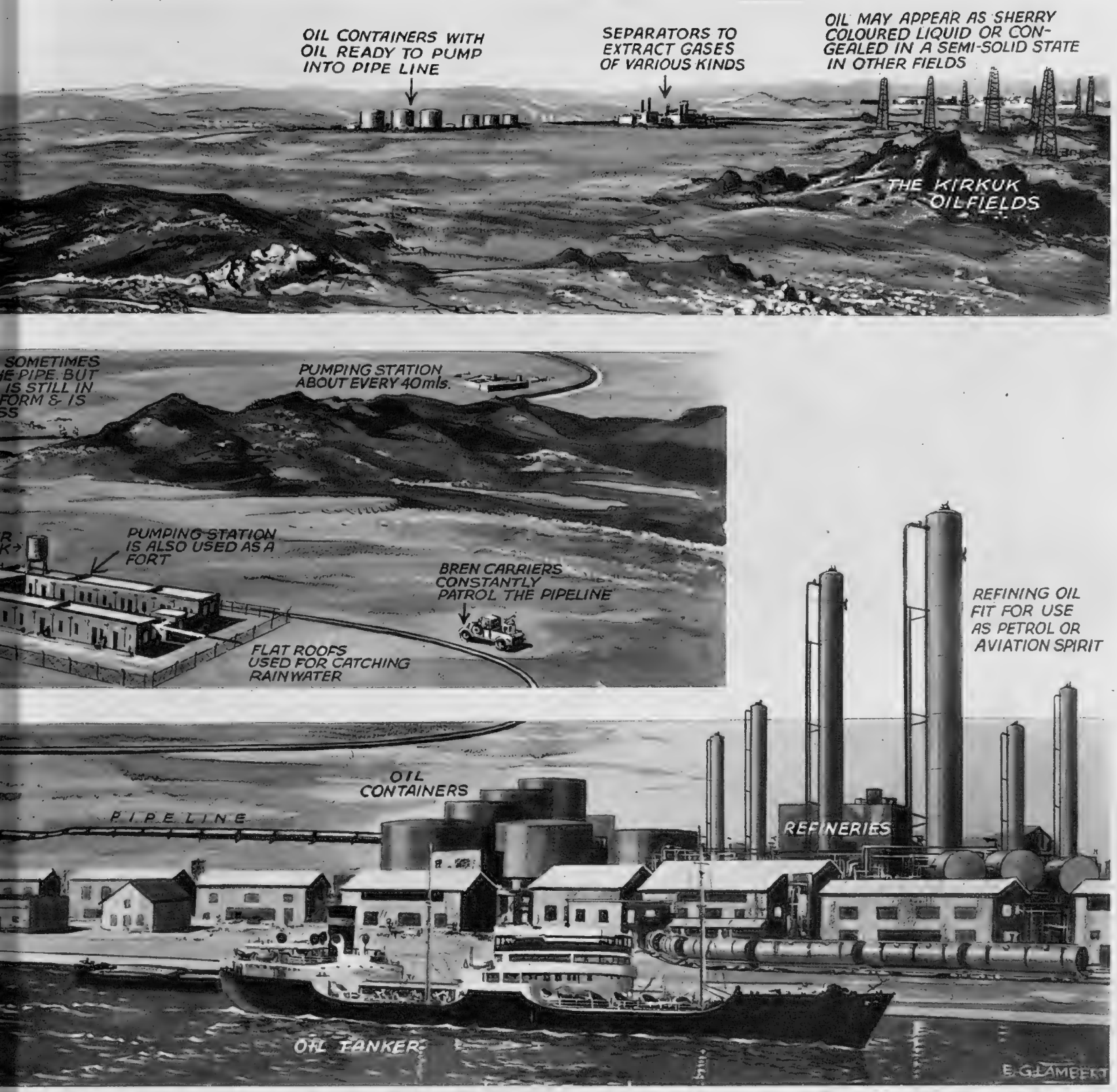
Crude oils vary enormously in character and often exhibit marked differences at different depths in the same oil-field. They may occur as viscous opaque black substances that scarcely flow to limpid, light-coloured, transparent, tinted fluids of the consistency and appearance of sherry. Some contain much asphaltic matter, others are so charged with paraffin waxes that on emergence they congeal like butter into a semi-solid state and have to be heated for movement.

The associated gases may be innocuous and have a sweet, aromatic odour or emit a vile odour and be dangerously poisonous or highly corrosive. Some of the Persian oil-field gases are so deadly that many operatives have lost their lives through ignorance of their dangers. Gases in the Quayarah oil-field of Iraq caused instant insensibility on inhalation, the limbs of sufferers crumpling up like jelly and with eyes standing out wildly in hideous fashion, but on removal to fresh air complete recovery was made in about fifteen minutes. Baku oil-field gases produced a sense of inebriation or somnolence, but rarely proved fatal. As all oil-field gases are highly inflammable and generally nefarious in some respect, they have to be removed from the oil in separators, from which they are either led to a safe distance and burnt or conducted to power-stations for fuel or other purposes. Sometimes the gas is used for the production of carbon block, and quite often it is distributed in gas mains for lighting and heating after treatment.

More often than not crude oils are contaminated with mineral impurities and saline water, which have to be abstracted, and refractory emulsions may have to be broken down by electrical or chemical processes. Certain oils deposit wax, which clogs the well casings and surface lines and fitments following the fall of temperature caused by gas expansion or lower atmospheric heat, and its removal or liquefaction calls for special operations. These preliminaries are designed to prepare the crude oil for pumping through pipe-lines, but are all carried out with a view to preserving as much oil

FROM OIL-FIELD TO REFINERY: HOW THE CRUDE OIL PASSES THROUGH pictorial

AT THE EXIT OF THE IRAQ PETROLEUM COMPANY'S PIPE-LINE AT HAIFA: On board a British tanker: the officer is seen regulating the flow of the oil into the ship's hold. In these days, the possession of oil wells is not enough; the country owning such wells must also possess an adequate number of the proper vessels for the transportation of the oil to the place where it is actually needed



ITS VARIOUS STAGES until its emergence as pure spirit fit for use as petrol for motor-vehicles or as aviation spirit fit for high-performance aeroplane motors—a representation of the manner by which the oil passes from oil-field to tanker—*Drawing by E. G. Lambert*

as possible. The transport and storage of oil on its way or on arrival at a refinery necessitates the adoption of special measures to ensure its safety from fire, losses by evaporation and leakage. Overground steel tanks are built in farms surrounded by bands large enough to contain the contents should they be damaged, and foam apparatus is commonly installed to extinguish fires should they occur. Lightning is a common cause of tank fires, especially in the hurricane zone of the Mexican Gulf, but static electricity quite frequently leads to strange explosions or conflagrations. The ocean transport of oil calls for vessels of careful design, as well as for special arrangements at ports, where sometimes oil is pumped through sea lines to terminals or dolphins arranged at roadsteads.

On reaching the refinery, the oil is passed to a battery of stills, where, subjected to varying temperatures by furnace heat, successively heavier products are distilled and condensed differentially in coolers which ensure graded products. The first distillates are the light gasolines or petrol, followed by heavier products designated as lamp Diesel or gas oils, whilst the heavy residuals may be the basis of lubricants or used as fuel or road oils and asphalt and plastics. By distillation under pressure, a larger proportion of lighter oils can be obtained due to a process called "creeking"; and by the use of a partial vacuum on stills improved quality heavy oils can be obtained.

Distillates are segregated in tanks prior to their further treatment with chemicals that ensure the removal of deleterious substances that impair their usefulness or transmit objectionable colours, odours or other undesirable properties. Re-distillation is sometimes necessary to impart the needful parity to high-grade oils and give them the desired limits of boiling-points; and special means are taken to prepare high octanerating aviation spirit.

Storage and distribution of finished oils involve highly specialised handling in order to ensure a minimum of loss by evaporation, leakage and fire. Such devices as floating roofs and respirators on tanks to diminish the air contact and condense escaping vapours, and provision of water-mist sprays or special foam mixtures to combat fires are common in large instillations. Road and railway transportation of bulk oils call for carefully-designed wagons to provide for temperature variations, vapour losses: and the four-gallon tin is one of the most sought-for articles by primitive peoples in Africa.

A MODERN BRITISH TANKER, built specially for the oil-carrying trade, and with her engines at the stern and the very well-equipped bridge amidships

THE NAVY PLAYS A GREAT PART IN THE ADVANCE INTO SYRIA : British destroyers bombarding French positions and tanks massing for the attack around Sidon, during the advance of our forces towards Beyrout—*Drawing by W. McDowell*

Owing to the geographical situation of Syria, the Royal Navy has been able to lend a very big hand in the advance of our forces towards Beyrout along the coastal road. In the area to the north of Sidon, the Vichy forces were massing batteries and transport to halt our northwards advance : in addition, a tank attack which seriously threatened our infantry was broken up by gunfire from the sea. British vessels went in so close to their targets that batteries of French 75's were able to open up on them from the shore.

PRESSING FORWARD IN SYRIA

On left—

Recent despatches from Syria have commented on the fact that the fighting in the districts to the west and south-west of Damascus has taken place in some very difficult country. The presence of steep escarpments has been especially mentioned. These have occurred in the neighbourhood of Merj Ayoun and in the valley of El Buka'a, which lies between the Lebanon and the Anti-Lebanon ranges. After the occupation of Damascus, British forces advanced in a north-westerly direction towards Rayak and Beyrout. This has taken them towards the Lebanon range and the district of the famous Cedars, amongst typical gorge and escarpment country. In the view given here, which is taken from the high peaks of the Lebanon range—Mount Sannin is one of the highest—looking towards the sea-coast at Beyrout, the Kadisha valley has on its left-hand side a precipitous scarp and a somewhat lesser one on the right. The form of the valley gives rise to a number of cascades. These Lebanon spurs are full of hill villages, with a Druse castle or a rock-perched monastery at frequent intervals

THE DIFFICULT FIGHTING TERRAIN IN THE MOUNTAIN REGION OF SYRIA : The Lebanon region which lies on the route of the British forces towards Beyrout

TWO OF COLONEL COLLET'S CIRCASSIANS : These men are operating with the Free French forces in Syria, having left Vichy territory for Palestine at the opening of hostilities. They braved many dangers in their journey across the frontier, many fording the River Jordan and arriving within the British lines drenched to the skin. These tough riders are of Turkish extraction, and are serving under French leadership

THE SYRIAN COASTLINE, TO THE NORTH OF TRIPOLI : It is towards this territory that British troops are now advancing : at Tripoli is the Mediterranean terminus of the pipe-line which crosses the desert from Iraq. Beyond Tripoli are the coastal plains seen above, which are flanked on the east by the hills of the Great Lebanon

THE CONVOY ASSEMBLES AND PREPARES TO FORM UP FOR ITS HAZARDOUS JOURNEY

This series of pictures was taken aboard one of the destroyers escorting a south-bound convoy through the English Channel into waters infested by enemy U-boats. The little ships and big ships alike braved everything the Germans had, passing through unscathed and without the loss of a single man—although within twenty miles of Nazi-occupied France. For the men of these ships it was just an everyday job, with everyday risks

H.M.S. "BLENCATHRA," A DESTROYER OF THE HUNT CLASS, which shot down an Me.109 on June 9, steams along the line of ships forming the convoy

THE CAPTAIN (bareheaded), WITH OTHER OFFICERS, studies the Convoy's course on the bridge of the destroyer

ANOTHER CONVOY PASSES THROUGH THE CHANNEL

AS THE CONVOY APPROACHES ITS DESTINATION, MOTOR-LAUNCHES WATCH OVER THE MERCHANTMEN: these small craft are useful both for anti-submarine and anti-aircraft defence. Note the well-shielded gun mounted forward on each launch

BRITISH MALAYA: The Empire's Outpost in the East.

Described by HERMIONE BEAUCLERK

THE British are notoriously ignorant about their Empire, and even more so about those affiliated countries which contribute so much to the strength of their Empire. But the time is here—and political events will not lag far behind—for a consideration of Malaya, that agglomeration of states whose principal city is the key to our Far Eastern trade. Singapore, whose façade of hotels and shipping offices, of swimming-pools and pleasure gardens, of avenues lined with flamboyant trees, and tourists and travellers from all the world, hide the Naval and Air Bases that have grown so swiftly in the last five years!

Singapore and Penang—cities of the world, commercial centres for all nations, populated in overwhelming majority by Chinese, yet belonging equally to all the myriad nationalities who dwell, trade and visit there—these towns are the outward and visible signs of the importance and wealth in the long peninsula which forms their hinterland. The story of Britain's association with that hinterland is an interesting tale, not without its black pages. But in the history of Imperialism it holds a unique position, for after the first and worst mistakes had been made, the appeasement and development of the various states was left to the initiative of a very few British Agents, by whose enterprise and authority alone was the civilisation of the west brought and adapted to Malaya.

Slowly, over a period of many years, the tribal and inter-state feuds, which were exhausting the wealth and energies of the people, were controlled. The Malay likes plenty of leisure to enjoy the natural beauties of his country, and consistently refused to become involved with the "donkey-work" of the industrial life that was springing into being. Chinese labour was cheap and easily imported and so gradually, near the tin mines and smelting districts, and in the centres of commerce and tourism, Chinese settlements and towns grew up. Indian labour, too, was easy for the British capitalists to import, and roads and railways and canals were operated from the Indian settlements that grew up over the country.

The potential wealth of the country is enormous. There is very little that cannot be grown in its fertile soil; its jungles contain valuable hard-woods, its plains abound in rice and fruit and cocoanut palms; along the railway lines, between the acres of rubber plantations, are the fruit and vegetable canning industries; in the plains of Johore and the plateaux of Kedah are the tin mines. Under the huge tracts of jungle, who knows what wealth may not be hidden? Gold and silver, it is known, though so far not in any very large quantities; oil perhaps, and certainly great quantities of tungsten ores, which hardened the steel of our weapons in the last war.

Going from the little sleepy town of Malacca, with its twisted streets and busy pawn-shops, its mellowed dignity of ancient greatness, to the white domes and parapets of Kuala Lumpur, as strange amidst the throbbing haze of forest as a Victorian illustration to a fairy-tale, is like going from one world to another. But Malaya has more worlds than this—orcharded Alor Star, with its broad yellow main street, its bazaars of Eastern bric-à-brac, pyramids of fruit, Malayan silks and pottery; its denizens of Chinese, Indian, and Malay wearing varieties of their national costume leavened by a European touch—shiny shoes, a panama hat, a pair of long pants; Kota Bharu, where, in the summer when the monsoon has ceased to lash the sea against the rocky coast, the compound of the Sultan's palace is almost invisible through the crowds of holiday-makers picnicking, wandering, chattering, selling, or sleeping in the sun; and the sea is littered with the gay sails of their sailing boats, and the air is thick with the smell of drying, rotting fish.

There is another world on the lonely beaches of the Eastern shore, where palm trees grow on tiny islets far out in the blue sea and golden sand; yet another on the long low mangrove swamps of the west, where crocodiles, mosquitoes and malaria make such a perfect setting for the theme of "white man's hell." And in Trengganu (where, as in Kelantan, the population is almost entirely Malay) where hills and coasts are dotted with little houses standing on high piles, as close as possible to the sea or the edge of a river, with the orchards and rice and maize fields around them, or at the river settlements whose inhabitants live and travel in their flat boats, and never move more than a few hundred yards from the "strips of daylight," as they call the rivers.

Small wonder that these lands are coveted; that anxious thoughts speed to that narrow strip of land in the Siamese Straits, the Isthmus of Kra, where the spinal mountain chain of the peninsula is low and wor... and where for years there have been rumours of buildi... a canal to cut Singapore from the most direct trade rout... The Axis Powers cast covetous eyes in all directions, an... the Japanese south-westwards drive cannot be oblivio... to the Malay Peninsula, at once a menace and a tempti... prize, when she makes her plans. Reinforcements of o... troops have been landing in large numbers in bot... Singapore and on the peninsula. To be weak there woul... be to betray the Dutch East Indies, to add to Australia's responsibilities, to jeopardise India, and to cut th... lifeline of food and liberty between us and the Far East

AN OVERHEAD VIEW OF PART OF SINGAPORE, city of fine buildings and wide open spaces: The picture shows the whole of the Teluk Ayer Basin, which shelters lighters and other small craft. To the left of the basin is the Anson Road Stadium, where the principal football matches are played

THE AUSTRALIANS ARRIVE IN MALAYA: A cheery greeting on arrival in Singapore to reinforce the already considerable garrison there

BRITISH COMMANDER-IN-CHIEF IN THE FAR EAST: Air Chief Marshal Sir Robert Brooke-Popham — A picture taken recently in Singapore

THE MALAYAN PENINSULA, A BULWARK AGAINST AGGRESSION IN THE EAST, with the great stronghold of Singapore at its tip. The garrison here has been reinforced three times; but in Southern Thailand, many Japanese "business visitors" have already made their appearance!—*Drawing by E. G. Lambert*

SINGAPORE and MALAYA
CAN PUT UP A GOOD SHOW

AST February Singapore and Malaya were promised an unceasing flow of men and munitions sufficient to lace the whole territory in a position to resist any possible ggression from Japan, who had recently joined the ripartite Pact and had announced her own far-reaching chemes for overlordship in the East. The promise of the mperial Government has been amply fulfilled. In spite of l the demands elsewhere, in Libya, Abyssinia, Greece, on he Atlantic, and home requirements, a ceaseless flow of he munitions of war, of men and material has made the ng journey to Singapore.

The matter of reinforcements had been urgent in ebruary and March, as a crisis had been expected in the rly spring. Japan had been growing more and more ggressive, and it was known that Germany was urging er to take action. Travellers who have recently arrived Egypt assert that six divisions of Japanese troops are ready in French Indo-China.

In Thailand the Japanese are carrying out the Nazi ethods of penetration, as illustrated in Rumania, ulgaria and Yugoslavia. The Siamese are not anti-ritish, and have long held a healthy respect for British ower, but they are being well soaked in Japanese propa-nda and the beauties of New Eastern order. At the nemas they have to endure endless pictures of the orious bombing of cities by the Nazi *Luftwaffe*, and all he varied attractions of the *Blitzkrieg* in full operation. apanese "business" men have been pouring into Thailand some pretext or other, but it has been noted that, in ite of their civilian clothes, they have a military appear-nce. It is even stranger that so much "business" seems be conducted close to the Malayan frontier, attracting these Japanese merchants. They are a slight variation to the German "tourists" but serve the same purpose.

AUSTRALIAN TROOPS LAND IN MALAYA: The thousands of troops of the Imperial Forces, who arrived recently in Malaya, very quickly settled down at camps at strategic points throughout the country. In some cases their training was resumed within 48 hours after landing

If the Japanese attempt to invade the Malayan peninsula from the north they will be faced with much jungle-land to penetrate. The greater part of Malaya is still jungle, especially on the eastern side, in the unfederated States of Trengganu and Kelantan, which have not yet been developed. The railways and roads are to be found on the western coast, where the varied plantations of rubber, tea, and the ricefields are situated.

The intensive preparations of the past months in Malaya have now made any attack upon it a difficult proposition. Troops are in occupation of the whole of the peninsula, and all the forces are of keen fighting quality —British, Australians, Indians and Malays, well trained in jungle warfare. Singapore has formidable defences in its renowned coastal guns, whose power is believed fully competent to deal with any attack from the sea. Anti-aircraft batteries are well posted and of such strength that enemy air attack will meet strong opposition, and attempted landings on the beach are also prepared for. With China still unconquered, Japan may think again before she adds to her difficulties, but her attitude is both arrogant and belligerent.

NEW LINK IN COMMUNICATIONS TO THE FAR EAST: The recent inauguration of the Pan-American Clipper service from Manila to Singapore has formed a new, supplementary link in communications in the Far East. This picture shows the arrival of the American-operated *Singapore Clipper* on its first flight from Manila, when it was greeted by Air Chief-Marshal Sir Robert Brooke-Popham, British Commander-in-Chief in the Far East

The World of Books—By Vernon Fane

WHAT IS WRONG WITH THE INDUSTRIAL ARMY?

Mr. Trevor Evans's "Disclosures"—Mr. Bevin versus Compulsion

IN spite of its fatuous title, **STRANGE FIGHTERS, WE BRITISH!** (Robert Hale. 3s. 6d.) is a serious work on a serious subject. Mr. Trevor Evans, who is the industrial correspondent of a great newspaper, has surveyed the war effort and commits himself to the opinion that we are working at about only 65 per cent. of capacity.

Paradoxically, he also demonstrates how, in twelve months, British industry reached a pitch of production which took four years to accomplish in the last war. We are also reminded that this was

THE WAR MINISTER'S SOCIALIST DAUGHTER: Miss Janet Margesson is the twenty-three-year-old daughter of the Secretary of State for War. She has applied for an exit permit to attend the American Youth Congress in Philadelphia next month. She is hoping to go as a delegate from the "People's Convention." Miss Margesson is a member of the University Labour Federation, which is represented at the Convention

achieved under the continued strain of aerial attack; of black-out conditions; of transport difficulties caused by widespread shifts of population, and of the general lowering of vitality attendant upon food shortage.

After Dunkirk, when practically the whole of the Army's fighting equipment was lost, and when it became apparent that we had to build, and build quickly, an effective answer to the *Luftwaffe* or perish, the workers went to it at a terrific pace. The response was magnificent. The heavier the bombings the higher rose the ultimate production curve.

To this effort Mr. Evans pays tribute, but he sticks to his 65 per cent. Need the toll on sustained efficiency be as high as that? The author is a skilled reporter. He looks for the news that makes headlines. (In this case they are on the wrapper.) The disclosures must be amazing; the facts disquieting.

They certainly are that. Take a works making a famous engine, upon the production of which so much depends. "There was a strange cloistral air of sedate dignity about some of the great fitting shops in the works." In this leisurely atmosphere craftsmen sullenly exploit their skill to the furtherance of everything but output. The Communist thrives. "If they were given proper leadership and saw the factory run efficiently they would respond. As it is, in their exasperation, they turn to the only quarter which seems to be giving them a lead and is prepared to get some genuine grievances removed."

This engine, originally estimated to cost £6,000, is being turned out at between £15,000 to £17,000, thanks to inefficient management and to the fantastic cost-plus-percentage system which fosters it.

That's management. On the labour side the men are revealed as ever ready to exploit the most trivial incidents, to walk out when they feel like it under the leadership of the subversive elements in the shop-steward movement, and to lose hundreds of thousands of production hours in sporadic disputes.

Was it not to prevent this kind of thing that the Minister of Labour was given dictatorial powers by Parliament on assuming office? Was not one of his first ministerial acts to sign the Compulsory Arbitration Order, declaring strikes and lock-outs to be illegal? Can he not apply his Essential Work Order to any industry and, under it, deal with incompetent management and with lack of discipline in labour?

Somewhere in this book Mr. Trevor Evans describes how Ben Tillett, the grand old veteran of the trade-union movement, was found wandering through the lobbies of the House of Commons seeking a means to "stop Ernie saying something that may kill all we have worked for." Ben was not able to stop Ernie, but neither has anything been able to prevent Mr. Ernest Bevin using his powers sparingly, and refusing to do by compulsion what could be achieved by agreement.

"Having announced his intention of assembling a great new industrial army," says Mr. Evans, "Mr. Bevin proceeded to consult his Joint Consultative Committee of employers' and trade-union representatives by informing them of his proposals and inviting their comments."

Step by step, and always in consultation with both sides of industry, this trade-union boss who had never been in Parliament, who had fought bitterly in the past with most of his Cabinet colleagues, used his enormous powers to mobilise an industrial army in what he would call an orderly manner.

Skilled labour was at a premium—and knew it. The fall of France had caused grave dislocation in certain industries engaged on export; notably coal mining. Shadow factories were coming into production all over the country—or not coming in fast enough owing to hold-ups in the building trade.

Being also Minister of National Service, Mr. Bevin had also to meet the drain on man-power occasioned by the demands of the armed forces. The R.A.F. alone requires personnel on a scale unknown in any previous war; while the Civil Defence Services add an extra burden of more than a million and a half. Moreover, in this highly mechanised warfare, the Services demand more and more skilled men.

Bombers and tanks require maintenance crews of experts; so does radio work, which has developed enormously, and is vitally important.

By agreement, trade-union customs were suspended; employers were asked to introduce, and the men to accept, dilution on a large scale. Upgrading, de-skilling, training in the shops, the extension of Government Training Centres and the creation of a Labour Supply Inspectorate were some of the methods adopted. By agreement also, concentration was imposed upon certain industries not engaged on war production, thereby, by a process of rationalisation, releasing labour for more vital work. Women began to flow into industry in ever-increasing numbers.

These processes continue, and are in constant need of adjustment. In twelve short months the turnover has been enormous. The present mark of the production curve and the small amount of dislocation are the measure of the success of Mr. Bevin's methods.

In this book Mr. Trevor Evans naturally sets out to focus the hold-ups, the frustrations, and all the factors impeding production summed up in his figure of 65 per cent.

Indubitably, industry is paying the price for the prodigious spurt of the autumn and winter of 1940. Long hours and seven days a week engender absenteeism (about which a lot of nonsense is talked on all sides). Discipline suffers, partly through bad management and partly because of weakness and lack of authority among the lower ranks of the trade unions, which, as Mr. Evans points out, presents the ever-active subversive elements with an opportunity which they are not slow to take. Bottlenecks also occur in industry, due to causes which the men, and sometimes the managements, do not properly understand.

The Minister of Labour has to steer his man-power programme not only past all these rocks and snags, but under the constant fire of critics who demand from him a greater application of compulsion on the one hand, and a larger measure of control, through Works Councils, on the other.

Sensitive to criticism, and not always using the happiest means of replying to it, Mr. Bevin nevertheless remains obdurate in insisting on obtaining results by his own methods of agreement. One by one he has applied his Essential Work Order to the key industries, an order which carries sanctions to implement its healthy application. As Chairman of the Production Executive of the War Cabinet, Mr. Bevin is also able to balance the competing claims of the great Government production departments.

There are no competitors for his job in Mr. Churchill's Government. The British, in Mr. Trevor Evans's words, may be strange fighters, but they have a habit of producing leaders in times of national crisis.

On balance, for all its "amazing disclosures" and "disquieting facts," this is a heartening book, despite the 65 per cent. and all that.

BROADCASTING TO THE AFRICAN FREE FRENCH: Mohammed Ben Mahommed is a French colonial soldier who has been decorated thirteen-times. He is now broadcasting to the Moors and Free French Forces in Africa from Britain

KING CHARLES SEES THE LIGHT AGAIN: The sandbags which have been hiding this fine statue from view near the Admiralty Arch have now been removed again. The statue is to be removed to a place of safety

THE HISTORY OF BRITAIN DISAPPEARING UNDER THE *LUFTWAFFE'S* AIR ATTACKS.: We have already given pictures of some of Britain's "History in Stone" destroyed during recent air attacks on London. Here is another instance—the famous Flying White Horse of Inner Temple Hall. In 1737 the Benchers employed John Michael Rysbrack to carve the effigy out of the best white marble for £100. It was moved several times, and became covered with successive coats of lime; but in 1933 it was recognised for what it was, and set up at the northern entrance to the New Hall. It has now received the damage seen in the above picture

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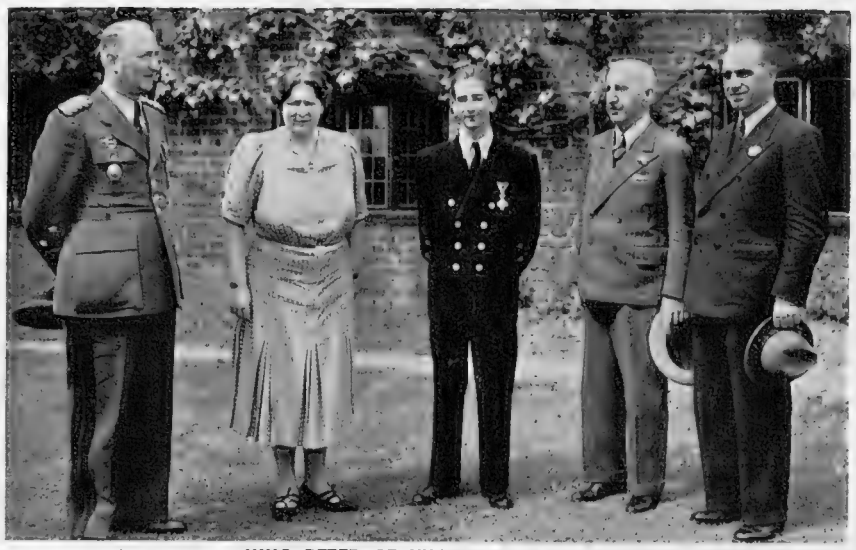
MRS. CHURCHILL IN BEDFORDSHIRE : Colworth House, at Sharnbrook, is the Bedfordshire home of Lord and Lady Melchett, which has been used as a rest centre for nurses from bombed areas. Some three hundred have already enjoyed its hospitality, thanks to the two owners and to the British American War Relief Society of New York, which has undertaken to maintain it as a health home for twelve months. A few days ago a distinguished party visited Colworth to see something of the work ; and here are seen Lord Nuffield, Mrs. J. G. Winant, Lady Melchett, Mrs. Churchill, and Lord Horder



KING PETER OF YUGOSLAVIA AT HIS FIRST CABINET MEETING IN ENGLAND : A picture taken in the garden of the country cottage in Huntingdonshire where the King is now staying with his mother, and where the Yugoslavian Ministers held their first Cabinet Meeting in this country. From left to right are seen : General Simovitch (Prime Minister), Queen Marie, King Peter, M. Nintchitch (Foreign Minister), and M. Knezevitch (Minister at Court)

THE CITY OF LONDON HOME GUARD AT CHURCH PARADE : The 1st City of London Battalion recently held a Church Parade, when they were inspected by Brigadier J. Whitehead, London District Commander (seen above). This Battalion operates both in the City and the West End, and still needs recruits : an invitation has been issued to all suitable men of the "C" Division area

ACTRESSES AS SANDWICHMEN : Ladies taking part in London's new show, *Actresses Will Happen*, are playing an unusual role in the West End streets. To save the costs of advertising, they are acting as their own sandwichmen. From left to right above are seen Miss Nelva Singer, Miss Mary Ashenden, Miss Vicky Lister and Miss Iris Hoey

DANCING THE FLORAL DANCE IN DRAKE'S BIRTHPLACE : A sailo of the Free French Navy joins in the historic Cornish Floral Danc when it was held through the streets of Tavistock, in Devon, famou as the home town of Sir Francis Drake

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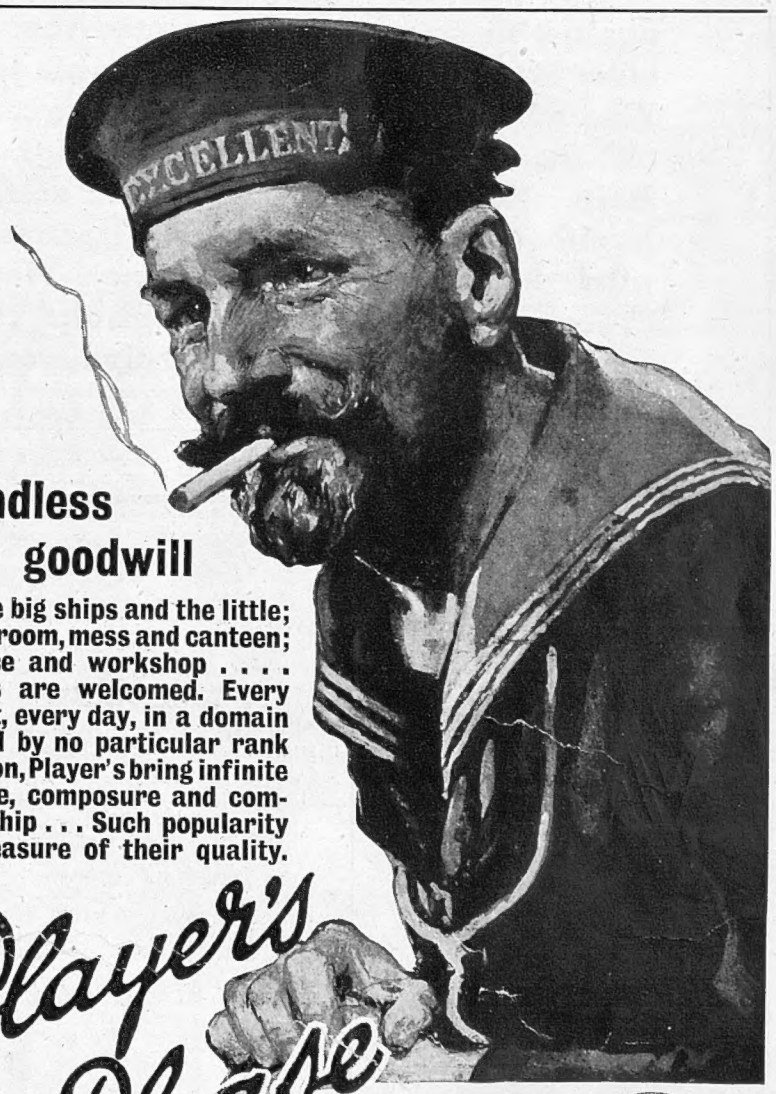

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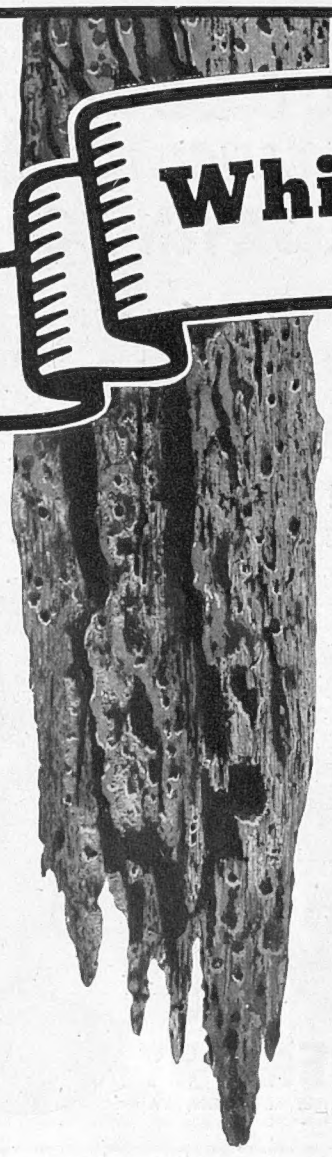

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In Quest of Good Hotels

By ASHLEY COURTENAY

ON the outskirts of Bude, overlooking the sea, is a small cluster of houses known as Upton.

It was here that I found Serendah, bright, clean, cheerful rooms facing the south and the sea. Eight or nine cheerful bedrooms, hot and cold basins, parquet floors, and central heating for winter visitors; and just across the road a path led across the Down down to sands, golden and unrestricted.

Mrs. McDermott, the owner, struck me as a public benefactor first, and a business woman second, so I feel pretty sure that 3½ guineas or 4½ guineas represents good value according to one's room and time of year. Further south I came to Boscastle, a bewitching mixture of countryside and sea. The wonder of it is that I am not still there, for I found a trio of places all to be recommended in their own category.

Old friends come first and I had taken the precaution to reserve a room at Welltown Manor, an Elizabethan period house about two miles outside on the road to Tintagel. Charming to the eye, restful to the body, it provides a first-class solution for the war-weary worker, as to where to go.

I slept in the annexe, which I prefer to think of as the Garden house, for I looked out on to a green lawn, the sea as my panoramic vista, and honeysuckle and other sweet-scented flowers to aid repose. "Did I have a peaceful night?" I was asked in the morning. How could it be otherwise in this background of loveliness where there are no sirens, and only on occasions is the night disturbed by aerial activities which have purports far removed from Boscastle. Here I smelt the good earth and sniffed the good air; I was fed well and entertained royally, not as a privileged visitor, but shared those pleasures with my fellow guests, for Mr. and Mrs. W. W. Whitely, who many will remember at Glenroy Hotel, Bournemouth, are born hosts, and here, out in the country, life flows on a deliciously even keel. Entering Boscastle from the north there is a small guest house on the right called Penally, which was taken over some few months back by Miss Smith who, until she was bombed out, was well known in residential hotel circles as the proprietor of the Ritz Court hotel in Bayswater. Don't expect 100 per cent. perfection of decoration at Penally because Miss Smith cannot, owing to war conditions, make all the improvements she would like, but the essential comforts are there; there is plenty of local-grown produce, so no one need feel they will starve and with someone of Miss Smith's reputation you can be sure of comfort and general well-being.

In Boscastle itself no one could miss the Wellington with its round façade, and if it is still a bit on the old-fashioned side within (there are only two bathrooms to nineteen bedrooms) difficulties of cleanliness are more than made up for by the friendliness and efficiency of Mrs. Stock who quickly makes one feel that there is plenty of goodness wrapped up in these old-fashioned surrounds. My own personal impression, gained from a very short visit, but supported by one of my rather critical hotel friends who recommended me to the Wellington, is that for anyone looking for a licensed hotel amidst peaceful and picturesque surroundings the Wellington at Boscastle will provide the answer.

It was regretfully that I said a temporary farewell to Boscastle, and with the sneaking hope that lack of accommodation would necessitate my return I once again headed southward.

It is only four miles on to Tintagel, a place I have tended to hasten through before, because of the "bed-and-breakfasts" boards and such signs of a popular tourist centre.

But the boards have mostly gone and it was only sheer pressure of time that forced me to move on.

It must have been some four years since I was last in Tintagel, for the Wharncliffe Hotel to which I was recommended was then in different hands. To-day the Wharncliffe is a model of spick and spanness, and run by a captain who, with many years of hotel experience behind him, has done much to improve the status of hotel-keeping wherever he has been.

I went into the bright dining-room, peeped into the kitchens, visited such bedrooms as were vacant, and throughout I got the same impression . . . an hotel to be recommended to anyone who is content with ordinary standards of comfort, plus a Mine Host who is a happy mixture of candour and friendship.

Mr. Ashley Courtenay is always pleased to advise "Sphere" readers of hotels, both large and small, known to him personally. Letters, accompanied by a stamped, addressed envelope for reply, should be addressed to him, c/o the Editor, THE SPHERE, *Commonwealth House, 1, New Oxford Street, London, W.C.1. Personal and telephone inquiries, however, cannot be accepted.*

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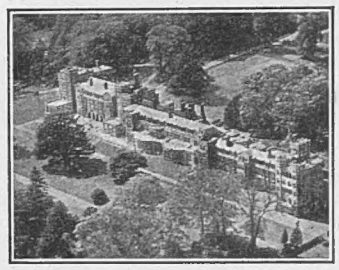

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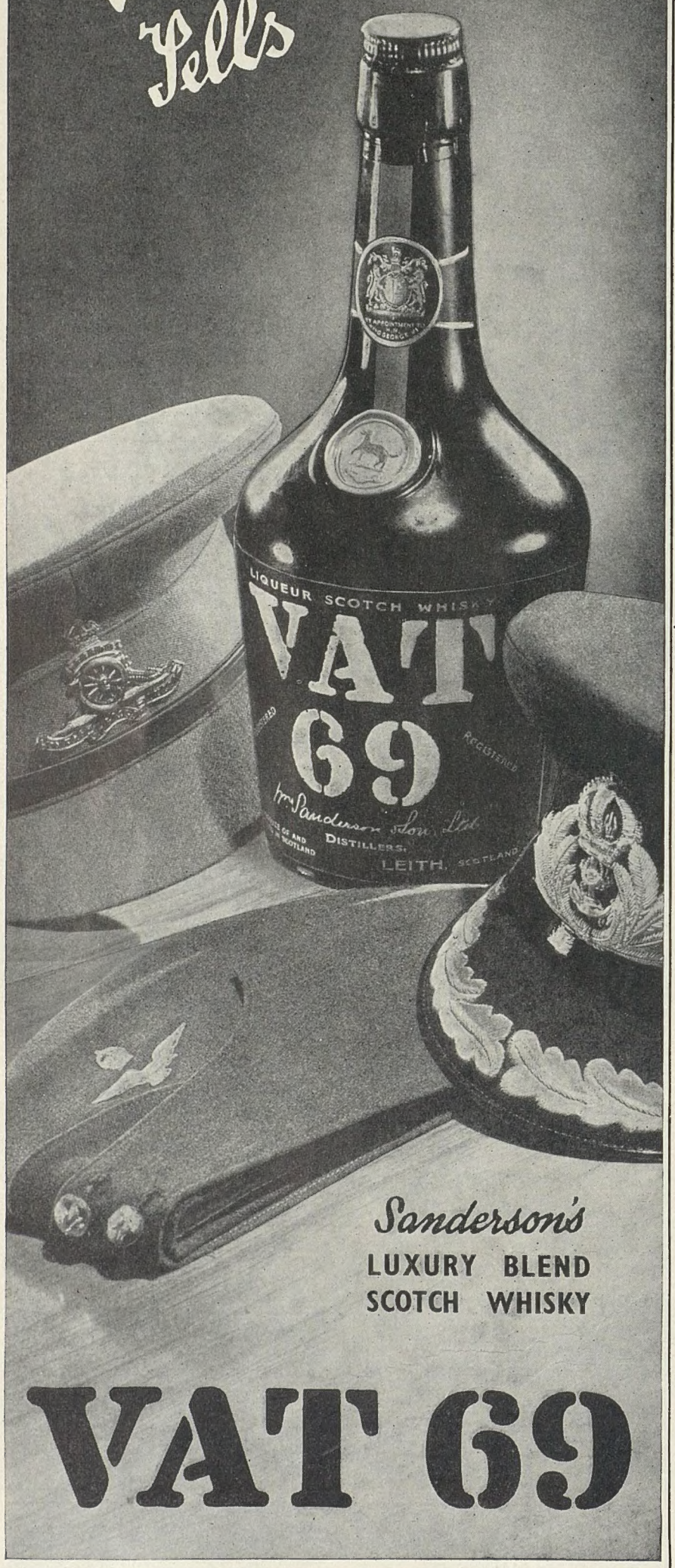

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